ARMY COMMUNICATOR

NIE

NETWORK INTEGRATION EVALUATION

Accelerating Integration and
Capability Delivery

PLUS:

- From the Foxhole to the White House - Signal Careers
- Connecting Italy's Biggest IT Project Ever
- Networking to Soldiers on the Edge

Report Documentation Page

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NIE process speeding new technology delivery

Fellow Signaleers,

American Soldiers are known worldwide for their ability to overcome any challenge that threatens to impede mission accomplishment. During this last decade of persistent combat, we have quickly placed some of the most advanced systems into the hands of our combat Soldiers through rapid equipment fielding programs. In our desire to get these devices into the hands of our Soldiers as quickly as possible, we've asked them to also integrate emergent capabilities to the network while conducting combat operations. While our Soldiers did splendidly, we have found that this increased burden needs to be moved back to the institution where we can focus on the integration process and ensure supportability and sustainability.

Concurrently, the Signal Regiment is transforming to meet future technological requirements at the speed in which technology becomes available. The SIGCoE will not only participate in bringing the complexity of integrating new capabilities back to the institution, but we will also ensure we field a complete solution; one that has considered implications across the entire Doctrine, Organization, Training, Material, Leadership, Education, Personnel, and Facilities spectrum.

The new Agile Acquisitions Process will focus on a specific Capability Sets to ensure integration of capabilities into the Network. Its goal is to biannually assess capability gaps, rapidly form requirements, solicit mature industry solutions, and performs laboratory and field evaluations in order to inform acquisition decisions that respond to the rapid changes in Soldier requirements associated with current operations. This new approach will be agile but provide more predictability for our acquisition community and industry. In addition we have worked with the G8 to ensure that funding is put into place to buy the Capability Sets when needed so that more industry partners will compete. It is a win-win.

The Network Integration Evaluation is a series of semi-annual evaluations utilized to integrate Network capabilities using a full Brigade Combat Team. The NIE ensures the Network satisfies functional requirement of the force while relieving

> "The Signal Regiment is transforming to meet future technological requirements at the speed in which technology becomes available."

the end user of the burden of integration; especially important in combat operations. The importance of this streamlined acquisition and testing process is placing new and emerging technologies into the hands of Soldiers early and often ensuring they maintain an overwhelming advantage over our adversaries.

This edition of the *Army Communicator* looks at the NIE concept. Keep reading and stay informed!

Pro Patria Vigilans!

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ARMY COMMUNICATOR

Voice of the Signal Regiment

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Cover: *This edition takes a close look at the Network Integration Evaluation Process that the Army is using to move the rapidly evolving latest technology quickly to the field.*

Cover by Billy Cheney

NIE process yielding rapid results

Signaleers,

We must be able to transform our information systems at the speed of technology to make certain that we always send our Warfighters into assigned missions with overwhelming advantage. This does not mean that we will change our systems with every new technological evolution, but this does mean that we must have the capacity to do so.

In the Signal Regiment, we must install, operate, and maintain a more capable, reliable, flexible, dependable, and defendable self-forming, intelligent network that properly stratifies, meshes, and delivers overwhelming information dominance. If we are going to stay ahead of our adversaries, both in the physical and cyberspace domains, we need to capture and integrate game-changing technologies sooner rather than later.

The Joint Capabilities Integration and Development System process was developed a decade ago to address several shortfalls identified by the Joint Chiefs of Staff to include (1) not considering new programs in the context of other programs, (2) not sufficiently considering combined service requirements and effectively prioritizing Joint service requirements, and (3) not accomplishing sufficient analysis. To its credit, these shortfalls have been greatly reduced while support to the statutory responsibility of the Joint Requirements Oversight Council to validate Joint warfighting requirements has greatly increased. However, when it comes to the acquisition of advanced Information Technology, the JCIDS process may not be the most effective. One critical challenge is that JCIDS can take up to a decade to produce a capability. This is exacerbated in how we often surmise our future technology needs. We either tend to significantly underestimate or to way overestimate what technology will do for us in the future. The cancellation of a specific portion of one of our major Programs of Record is an example of the latter. Years ago when this program was being formulated, we overestimated advances in technology and assumed that there would be some breakthroughs in physics. The scientific advances did not happen. So the cost of one of the programmed radios became extraordinary as vendors tried to make every channel do everything. The unyielding requirement for a four-channel radio to do "Everything to anything" has resulted in nothing.

Concurrently, this same commercial industry continued to make iterative updates to communications devices marketed to the average civilian consumer. Large quantity buys of small relatively inexpensive devices was more than adequate to fuel commercial Internal Research & Development. Here is an example of underestimating future technology capabilities: industry continues placing more and more sophisticated devices into the hands of consumers, and our adversaries, while personal communications devices for the Department of Defense languish.

The Network Integration Evaluation is a semi-annual process designed to allow rapid integration of existing technologies into our current tactical network. It is a key element of the Army's emerging Network Strategy in which rapid acquisition is critical. We are already benefiting from it. Following a stream of focused laboratory testing at Aberdeen Proving Ground, Md., and the Detroit Arsenal, Warren, Mich., the NIE conducted at Fort Bliss, Texas is one of the seven phases of the developing biannual Agile Acquisition Process. This new process allows us to evaluate what commercial industry can offer us today, under assorted military scenarios to ensure the systems meet our expectations, and to integrate them into our current architecture prior to the systems' introduction in a combat environment.

As the RCWO, I am extremely proud to know that we have senior Signal warrant officers assigned to many of the organizations influencing the NIE. Later this year we will assign our first warrant officer to the Systems of Systems Integration department of the Assistant Secretary of the Army for Acquisition, Logistics, and Technology. This is the organization responsible to oversee this entire process. This assignment will add to the positions already at TRADOC, G-3/5/7, CIO/G6, G8, and the BMC. Our Signal warrant officers are definitively value added.

Thank you again for your dedication and service in being "Ever Watchful for Our Country."

Signal Soldier professionalism critical

Signaleers,

I want to highlight the hard work, dedication and professionalism of our Signal Soldiers supporting the efforts of the Network Integration Evaluations. Our Signal Soldiers are serving as the on-ground experts during testing, evaluation and practical application of every piece of communications equipment accepted for NIE. They pull long hours, are the first to learn operational aspects of each piece of equipment, perform the tough task of integrating emerging technologies into our current network and run each piece through the stringent testing and evaluation network suitability portion of NIE. They provide critical feedback on the ease of operation and common sense aspects of each piece of equipment. The Signal team at NIE continues to lead the way as we transform and begin implementing new and emerging technologies for communications support during Unified Land Operations.   They continue to do great things for the future of our Army and our Regiment!

I also want to share with you a few points about the Profession of Arms Campaign that is designed to strengthen our profession. The Army profession is defined as a vocation comprised of experts certified in the ethical design, generation, support and application of land combat power, serving under civilian authority, entrusted to defend the Constitution and the rights and interests of the American people. Six essential traits identify the Army as a profession and guide us through time, combat, contingency and transition. They are the trust of the American people, internal trustworthiness, military expertise, esprit de corps, honorable service and stewardship of the profession. The Center for the Army Profession and Ethic is the repository for valuable information and training material regarding the Profession of Arms Campaign. Information and topics supporting the campaign can be downloaded for inclusion in professional development sessions. I encourage each of you to visit their Website at **http://cape.army.mil**.

One of the themes within the Profession of Arms Campiagn "Back to Basics" is a call to standards and discipline. Grooming, uniform standards and military courtesy are part of our everyday life. Some say the enforcement of standards has suffered due to years of war and that our Soldiers are too busy to worry about standards. I disagree. We are never too busy to let standards slide. We are successful as an Army because of our adherence to standards and discipline. Basic Army standards have not changed and do not differ from installation to installation. The only thing that differs is enforcement of the standards. No one is exempt from adhering to standards, from our top leaders to our newest recruits. As leaders, our responsibilities are threefold. First, we must lead by example and comply with the standards ourselves. Second, we must train the standard. We didn't just wake up one day knowing the standards. A leader took his or her time to train us.   And third, we must enforce the standard, not just when it is convenient, but all the time. Walking past a mistake sets a new standard of accepting mediocrity. We all have to shoulder the responsibility and do our part by following and enforcing established standards. Remember, we are all stewards of the Army profession.

Thanks for what you and your families endure everyday to make us the greatest fighting force on earth! I am proud to serve by your side!

ARMY STRONG!!!

Signal career opportunities stretch from foxholes to the White House

By LTC Mark Rosenstein

A veritable world of opportunities exists for Signal Soldiers to expand their technical and leadership abilities.

As a result of improved communications technology and information services fielded by the U.S. Army over the past decade, Signal Corps enlisted Soldiers are now encouraged to take an increased role in managing their career and developing their technical aptitude.

The proliferation of advanced technology that warfighters now depend on dictates that Soldiers must gain credentials such as the Cisco Certified Network Associate or the Certified Information Systems Security Professional certification among others.

It is important for enlisted Soldiers and leaders to periodically engage their mentors and career managers to improve their awareness of career opportunities.

From a technological perspective, think about Voice over Internet Protocol/Voice over Broadband or Internet Protocol Telephony/Internet Telephony. Although slightly different, these capabilities are now commonly employed across the Department of Defense to synchronize operations and maintain mission control. It is hard to believe that in 2003 when the U.S. Army crossed the berms of Kuwait into Iraq it still employed area Signal battalions that operated Mobile Subscriber Equipment. It was a challenging time for these units.

However they went on to lay the foundation that eventually established the largest tactical network in U.S. Army history. This was made possible, in large part, as a result of emerging technology that included IP-based advancements that enabled the U.S. Army Signal Corps to stitch together what became the operating bases of Iraq.

The technological "pace-of-change" over the past decade has touched all facets of military maneuvers and operations leading to the "network" being thought of as an enabler to other more lethal weapon systems and eventually leading to the establishment of a new sub-unified command, U.S. Cyber Command. The U.S. Army Signal Center of Excellence has also embraced technology that

has revolutionized how DoD synchronizes and prosecutes missions with its "µCyber / Micro-Cyber" initiative that is transforming the U.S. Army Signal Corps, its equipment, and the 17 different Military Occupational Specialties that comprise the 25-series Career Management Field.

Given this high and seemingly continuous pace-of-change, Signal Soldiers and leaders are encouraged to seek out opportunities to refine their leadership and individual technical abilities. The organizations highlighted below provide these type opportunities which will help Soldiers and leaders develop the sophisticated operational technical leadership and skills that will propel their careers, enhance the capabilities

JCSE trains to support airborne, maritime, and airmobile insertion operations such as this operation by SGT Garrett Barton, 2nd Joint Communications Squadron.

SGT Ryan Pierson and SSG Luis Gonzalez, install the X-Band MicroSat, the 1.2m Inflatable x/Ku Band SHF Antenna and the Special Operations Integrated Communications Vehicle "Panther."

of the Army and can ultimately take them from the "Foxhole to the White House."

•*Expeditionary Signal Battalion and Corps/Division G6/S6/Signal Company – ESBs and Corps/Division Signal Elements* are designed to support the modular employment of a tactical "theater-centric" network capability. Currently, the U.S. Army employs 24 ESBs spread across the Active, Reserve and National Guard force as well as supporting G6/S6/Signal Company elements. Enlisted Signal Branch is always seeking enthusiastic Soldiers and NCOs interested in serving at the ESB/Corps/Division-level. Interested Soldiers and NCOs can learn more about ESB, Corps, and Division-level assignments by contacting their career manager at https://www.hrc.army.mil/site/protect/Active/epsig/sigdir.htm.

•*Joint Communications Support Element* headquartered at McDill Air Force Base, Fla.,

provides enroute, initial entry/early entry communications support for Joint Task Force elements in support of permissive and non-permissive environments. Assigned personnel receive military and commercial training supporting cutting-edge and Information Technology and may have opportunities to meet representatives from many of the world's leading communications vendors. To meet its global mission, JCSE maintains a professional force of trained, rapidly deployable communications experts who possess exceptional network and telecommunications skills. JCSE is a diverse and flexible organization that comprises both active and reserve component forces. JCSE is always seeking qualified active and reserve Soldiers. If you have what it takes to join this team visit http://www.jcse.mil/live09/JCSE_DJC2.htm or call (813) 828-0628 or DSN 968-828-0628.

•*Joint Communications Unit*, headquartered at Fort Bragg, N.C., has earned the reputation as "DoD's Finest Communicators" and pride themselves on their ability to execute a wide range of challenging missions with their professionally trained and expert communicators. Personnel selected for JCU attend the Special Operations Radio Operators Course, JCU's six month training pipeline that prepares each member to serve as a JCU communicator. Candidates receive training in advanced tactics, marksmanship and driving before being immersed in rigorous technical training that earns them their SEC+, NET+, and CCNA and provides the requisite knowledge to serve in JCU. Upon completion of SOROC, JCU personnel continue the military and civilian education that will make them the foremost experts in the communications field. If not airborne qualified, personnel will have the opportunity to attend airborne training and other

military schools to enhance their professional development. JCU recruits the most highly qualified personnel who demonstrate a superior aptitude in the communications field and the commitment and maturity to serve in an elite organization. All assigned personnel are given a high-level of responsibility and are expected to maintain the highest of standards. The members of JCU receive Special Duty Assignment Pay and a Civilian Clothing Allowance. JCU is currently looking for all CMF 25 specialties. To receive more information or to apply call (910) 243-0203, DSN 312-383-0203, e-mail jcurecruiting@jdi.socom. mil or visit the web site at http://www.jcuonline. org/airborne/Recruiting/ CurrentNews.aspx.

•*Defense Information Systems Agency*, headquartered at Fort Meade, Md., with assignments worldwide, employs both military and civilian members. Working at DISA is exciting, important and highly satisfying. The capabilities and services needed to share information and enable joint warfighting across DoD is based on an enterprise infrastructure that is controlled by DISA. The enterprise is based on standards and common approaches; a seamless blend of communications, computing, services and information assurance, including seamless transport, gateways, wireless and satellite communications; and a focus on internet protocol and standard computing platforms. Assigned personnel can expect to receive technical training and certification supporting the world's leading IT equipment as well as emerging technology. DISA recruits new members in all communications and IT specialties. To apply visit http:// www.disa.mil/Careers/New-Employees or call (301) 225-1390, DSN 312-375-1390.

•*The White House Communications Agency*, headquartered at Anacostia Navy Yard, Md., selects only the best communicators from across all services to support the Office of the President of the United States. Soldiers selected to serve with WHCA can expect to receive technical training on advanced communications and networking equipment as well as other equipment and tactics supporting operational requirements. WHCA is looking for self-motivated and mature IT professionals who aspire to be part of this renowned organization. Soldiers assigned

Photo by CPT Spencer Calder

SFC Richard Hodges explains Defense Information Systems Agency's relationship with American Telephone and Telegraph Company's Joint Hawaii Information Transfer System network to Air Force 1LT Curtis Floyd and IT2 Frederick Marcaida.

SGT Brandon Boyd, Visual Information Command performs his duties with the White House Communications Agency.

developing their technical leadership and aptitude. The cited organizations will challenge Signal professionals to achieve their highest potential.

LTC Rosenstein joined the U.S. Army Signal Corps after serving as a field artillery officer. Over his career he has held a variety of leadership and staff assignments including: battalion commander, corps and division G-6 plans officer, brigade and group S-3, battalion executive officer and company commander among others. He deployed to Iraq twice with V Corps and the 22nd Signal Brigade for Operation Iraqi Freedom and later with the NATO Training Mission – Iraq as an advisor/mentor. He also deployed to Haiti with the 10th Signal Battalion, 10th Mountain Division for Operation Uphold Democracy. He is currently serving as chief, Enlisted Signal Branch, Human Resources Command.

to WHCA receive Special Duty Assignment Pay and a Civilian Clothing Allowance. WHCA is currently looking for all CMF 25 specialties. To apply visit http://www.disa.mil/Careers/WHCA/How-to-Apply or call (202) 757-5150, DSN 312-284-2000.

As emerging technology and changing information services and processes continue to re-shape the communications environment our Army operates in, Signal Soldiers and leaders can, and should, take an increased role in managing their career and

Join the Discussion
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ACRONYM QuickScan

AT&T - American Telephone and Telegraph Company
CCA - Civilian Clothing Allowance
CCNA - Cisco Certified Network Associate
CISSP - Certified Information Systems Security Professional
CMF - Career Management Field
DISA – Defense Information Systems Agency
DoD – Department of Defense
ESB - Expeditionary Signal Battalion
IP - Internet Protocol
IT - Information Technology
JCSE – Joint Communications Support Element
JCU - Joint Communications Unit

JHITS - Joint Hawaii Information Transfer System
MOS - Military Occupational Specialties
MSE - Mobile Subscriber Equipment
SDAP - Special Duty Assignment Pay
SOROC - Special Operations Radio Operators Course
TACLANE - Tactical Local Area Network Encryption
TPN - Tactical Packet Networks
VoIP - Voice over Internet Protocol
VoBB - Voice over Broadband
WHCA - White House Communications Agency
WHASA - White House Army Signal Agency
WHSD - White House Signal Detachment

Signal battalion major proponent in $400 million Italian project

By Jim Rogenski

The 509th Signal Battalion is a major proponent in one of the largest design-build projects ever performed in Italy.

To support the U.S. Army Africa, 173rd Airborne Combat Team and the transition to two combat brigades in Europe, the 509th Signal Battalion is charged with information technology planning and installation for the $400 million military construction project at Dal Molin. The scope of this project provides great challenges for the battalion since it includes construction of 34 buildings and modernization of nine existing structures.

Not only has the size of the project offered challenges, but some unusual conditions added to the complexity of the project. Dal Molin was a former Italian air base. Issues such as unexploded WWII ordinance and Roman era ruins slowed project implementation. Additionally, the location provided little communications potential and required rebuilding from the ground up.

The group guiding this complex IT project is the battalion's Business and Plans Division. The division's project team is comprised of government service and Italian host nation employees. Each is trained in IT project management and worked as contracting officer representatives. The integration of the two cultures mitigates translation and quality issues while working with Italian contractors. This diverse mixture of employees expedites contract agreements and promotes teamwork between external organizations.

The project's team began the initiative by building relationships with community stakeholders. This included the garrison's department of public

Aeriel view of the Dal Molin complex in Italy where the 509th Signal Battalion is tasked with the planning and installation of the information technology infrastructure for the $400 million military construction project.

The 509th Signal Battalion is facing the challenge of configuring and installing the IT infrastructure in 34 new buildings and nine existing structures in one of the largest such projects at a site that was formerly an Italian air base.

works and the Navy's Facilities Engineering Command. The team participated in weekly planning meetings providing input as IT subject matter experts. Their work included design of inside/outside plant wiring, protected distribution systems and network closets. The team's superior work was verified by 5th Signal Command during quarterly design reviews. The work center is now the most experienced Army IT planning group in Italy. Nevertheless, this level of effort required external support to accomplish project goals.

Leaders from the 5th Signal Command and the Installation Information Infrastructure Modernization Program were fully integrated into the strategic planning process. They provided network backbone design, contract support and procurement of the most current technology. Dal Molin will be the first Voice over IP campus in the European Theater. The new service is transported by Multiprotocol Label Switching equipment utilizing 182 network devices. The I3MP personnel are responsible for equipment procurement to help ensure standardized enterprise management of European Theater resources.

The equipment contract is scheduled for award in July 2012. Once on-site network managers will test, accept and install

devices over a two-year phased period. This process begins in the Fall of 2012 to meet the June 2013 opening target. However, the project's phased completion date is scheduled for January 2015.

The 509th Signal Battalion is a key stakeholder in the successful completion of Dal Molin. Supporting the $400 million dollar project requires talking with external organizations to direct services. It requires employee engagement to coordinate actions up and across the chain of command. Direct conversation with customers is a critical factor in uncovering needs that may not be articulated. Many times informal interchanges lead to expanding networks or adding functions customers have overlooked. Finding issues ahead of an IT project saves millions of dollars on large IT ventures.

One Dal Molin cost savings included collapsing an environmental control management system into the planned network. The garrison developed a separate transport system to gather facility environmental data. However, it became clear the Army's network could handle the workload at no additional cost. This and other cost avoidance measures saved the government approximately $2 million. The battalion's project team continues to look for ways

to save time, effort and money during the project process. Members of the Business and Plans Division demonstrate outstanding stewardship in IT project management. Representatives from the division's project team demonstrate an understanding of needs, streamline costs and provide new technology solutions. Their diversity, IT expertise and project knowledge make them a top NETCOM performer.

James P. Rogenski began his career as an electronics technician and has reinvented myself many times in order to meet the requirements of changing technology. His work experience includes eight years active duty, 11 years commercial sector and 12 years as a NETCOM employee. His past duty assignments include: NEC Business and Plans Division chief, deputy, operations officer Italy/Balkans NOSC chief IT Plans and Projects Data Network analyst Telecommunications Specialist supervisor, Global Information Grid Facility NCOIC, Wideband (Microwave /HF/ Satellite) Maintenance. He attended the Army Management Staff College, NEC Leadership Course, National Defense University - Advanced Management Program, and earned an MBA from Norwich University.

112th Signal Battalion Celebrates Twenty-fifth Anniversary

MAJ Chris Keeshan

In 2011, the 112th Signal Battalion (Special Operations-Airborne) celebrated its 25th aniversary of supporting special operations forces.

Today's only airborne and special operations Signal battalion was activated at Fort Bragg, N.C. on the 17 September 1986 under the 1st Special Operations Command with the unique mission of providing communication support to Army Special Operations Forces. Since that time, the 112th has participated in nearly every major campaign and operation to including Just Cause, Restore Hope, Desert Shield, Desert Storm, Enduring Freedom, Iraqi Freedom, New Dawn and countless smaller humanitarian assistance, unconventional warfare, non-combatant evacuations, foreign internal defense, and drug interdiction operations.

The 112th Signal Battalion's unique task organization, training model and emphasis on the empowerment of team leaders make it an ideal role model when considering tactical Signal unit reorganization. The battalion's cross-training model for Signal Soldiers proves that smaller teams can accomplish the most challenging missions when organized and trained properly.

Reactivation

Re-activated in 1986, the 112th Signal Battalion traces its roots to the airborne and glider formations of World War II. The unit's motto "Penetra Le Tenebre" is Italian for "Penetrate the Shadows," an acknowledgement of the unit's participation in the Italian campaigns in 1944. Elements of the 112th Signal Battalion participated in the liberation of Europe including parachute and glider assaults in France and Germany. Unit Soldiers refer to themselves as the "Shadow Warriors," in honor of their traditional and continuing role supporting the Army's airborne and special operations forces.

Current Task Organization

The battalion is currently task organized into a headquarters and headquarters company, three identical special operations Signal companies, and a theater Signal support company.
The headquarters and headquarters company includes the staff and battalion support functions with organic motor and electronic maintenance sections, as well as a robust NETOPS section embedded in the operations section. HHC is also home to the battalion's hub platoon which operates and maintains four mobile SATCOM hubs.

The 112th Signal Battalion special operations companies or "line companies" are currently task organized to provide eight nodes on the battlefield. A typical line company can support up to three combined joint special operations task forces, which usually consist of a U.S. Special Forces Group Headquarters and three or more SOF battalion-sized elements. Units from the 112th SB employ smaller Signal packages for support at the SOF company or team level. Additionally, because of their unique skills sets and SOF experience, 112th Soldiers are frequently employed as individual assets providing executive communications support to flag officers or other VIPs.

The theater Signal support company is led by a command team consisting of a major and sergeant major stationed at Fort Bragg, N.C. The TSSC oversees six separate and geographically dispersed SOF Signal detachments that are co-located with the regionally oriented TSOCs that they support. The six SSDs are; SOCAFRICA SSD stationed at Kelly Barracks Stuttgart, Germany, SOCCENT SSD at MacDill AFB, Fla., SOCEUR SSD at Patch Barracks Stuttgart, Germany, SOCKOR SSD at Yon Song Seoul, South Korea, SOCPAC SSD at Camp Smith, Hawaii, and SOCSOUTH SSD at Homestead ARB, Fla.

All of the SOF SSDs are 32-Soldier detachments with the exception of SOCKOR which has an authorized strength of 15 Soldiers. SOF SSDs are commanded by a captain and a first sergeant, with the exception of SOCKOR which is led by a master sergeant. SOF SSDs employ a variety of Army common, SOF program of record, and theater-specific communications packages to provide tactical communications support to their local TSOC. SOF SSDs are USASOC units, assigned to the 112th Signal Battalion and OPCON to the TSOC they support. The OPCON relationship means that the TSOC J6 determines the command's tactical communications requirements and tasks the SSD to meet them. Close coordination between the J6 and the SSD leadership is critical to mission success.

Training Method

The 112th Signal Battalion has had at least a company-sized element deployed in the

CENTCOM AOR since October of 2001, making it one of the most deployed units in the Army. To maintain that presence in-theater, the battalion has grown, activating charlie company in 2001, and developing and refining its own training and force generating cycle. The 112th SB's "green-amber-red cycle" is similar in concept to USSOCOM's Joint Operations and Readiness Training System and the U.S. Army's Army Force Generation cycle in that it aims to train and equip the appropriate sized force to maintain the current and projected OPTEMPO.

The green-amber-red cycle concept is based on three, eight-month phases focused on training, deployment and reset. The centerpiece of the cycle is the "green cycle," or pre-mission training phase. Green cycle begins with a comprehensive operational readiness survey which is designed to validate the operational readiness of major systems, including all Signal assemblages, power generation systems, weapons and optics. The training focus of green cycle begins with individual training on IT basics including A+, Network Plus, Security Plus, warrior tasks and hands-on training on Signal assemblages. Emphasis is placed on Signal theory as opposed to orientation to a specific Signal system or assemblage.
A key objective in the green phase is the transformation of young Signaleers fresh from initial entry training into "SOF communicators," ready to deploy in as little as eight months from their arrival in the 112th. Cross-training among military occupational specialties 25B, 25C, 25S, 25F and 25N means that Soldiers are truly members of a team – capable of taking on a different role or specialty if the mission dictates. As green cycle progresses, collective training at the team level and
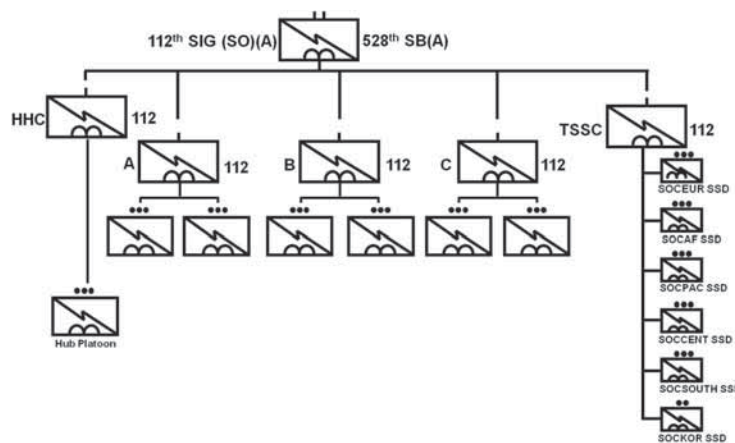
Figure 1 - Current 112th Signal Battalion Task Organization.

then company level is integrated and validated in the form of a series of named collective training exercises. Each collective exercise builds on the previous event and culminates in a company-led and battalion-validated exercise known as Shadow Strike. Shadow Strike certifies that individual teams are prepared to execute their wartime mission and upcoming deployment.

Amber cycle is the term used to describe the deployment phase or actual execution of the mission. Deployed units leverage distance learning to keep their individual skills sharp during deployment. Upon redeployment, 112th companies enter the "red cycle" phase, or reset. The focus of red cycle is the reintegration of Soldiers and families, NCOES and professional development schooling, equipment resets and support taskings. Companies in red cycle are responsible for keeping some teams and packages ready to deploy on contingency missions in support of SOF.

NCO Leadership

The key to 112th SB's success has always been with the empowerment of its non-commissioned officers. Special operations forces operate in small dispersed teams, often relying on only what they bring with them and their own resourcefulness and ingenuity. This isolation frequently means that 112th teams consisting of three to seven Soldiers led by either a sergeant or staff sergeant must make decisions and configuration changes to their equipment without the instruction or oversight of company or battalion leaders. Team leaders are highly trained communicators typically holding numerous technical certifications and often with bachelors or advanced degrees in information technology. Unit PMT emphasizes

Figure 2 - The Green-Amber-Red training and deployment cycle.

realistic training focused on the area or site to which the team is deploying, but is also designed to encourage initiative and aggressive problem solving at the team level.

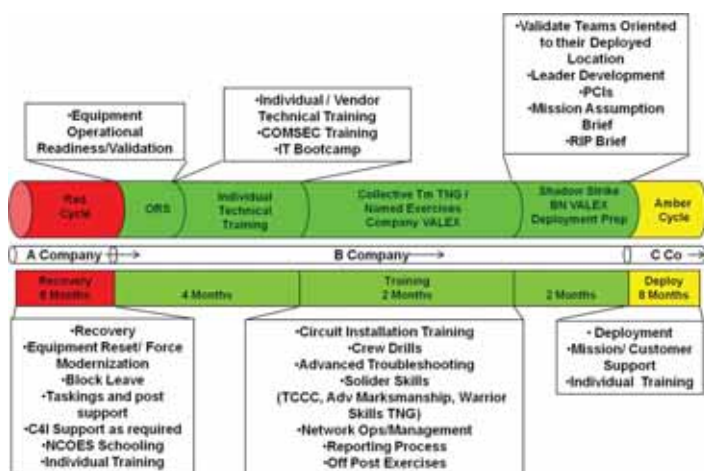The unwritten philosophy of the 112th is to "equip the man" as opposed to "man the equipment" which is why 112th teams have historically remained small (three to seven Soldiers) as their equipment evolves with technological advances.

CSM Chet Grelock, 112th SB command sergeant major, emphasizes this reliance on strong NCO leadership and Soldier initiative. He says, "If you want to be a master of your field, this is where you want to be. We want you to communicate. We are not bringing extra folks [on deployment] to pull detail. I need you to be an expert. I plan on a team member to be acting team chief when the team leader is not there, and I want you to solve the problem."

LTC Charles "Chuck" Daly, 112th SB commander says, "The 112th succeeds because we have great NCO leaders who lead and operate in small, decentralized teams, and we heavily invest in the technical and tactical development of our Soldiers – regardless of their MOS. We deploy some very unique expertise in the tactical segment of the SOCOM information environment, notably our HUB capability and the NETOPS we are providing for joint special operations forces."

Capabilities

Units from the 112th SB employ a variety of Army common, SOF program of record and unique systems. The 112th SB is equipped with a number of Army common multichannel SATCOM systems including

the Secure Mobility Anti-Jam Reliable Tactical Terminal, the Phoenix Terminal, and the Lightweight High Gain X-Band Antenna. The 112th modifies these systems to meet unique SOF requirements when the mission dictates.

The 112th SB performs the majority of its support within USSOCOM's portion of the Global Information Grid known as the SOF information environment. The SIE includes SOCOM-owned and leased transport systems reaching every region of the globe, as well as data centers and services designed to reach from CONUS to the SOF team level. The SIE includes gateways to the DISN to provide SOF the ability to communicate directly with their conventional force counterparts. The 112th SB enjoys the unique ability within SOF to operate both within the SIE and when necessary connect directly to the DISN with its own unique joint interoperability test command certified systems.
To operate within the SIE, the 112th SB employs equipment fielded under the SOCOM Program of Record known as Special Operations Forces Tactical Assured Connectivity System. The SOFTACS family of systems includes the SOF deployable node light, medium, and heavy packages. Each of these SATCOM transit cased systems is tailored to provide SOF forces access to the SIE at the team, company, and battalion echelon. The 112th SB has used the KU-band SDN-Medium and SDN-Heavy system in support of OIF and OEF for several years. In addition to SOFTACS equipment, the 112th Signal Battalion developed and fielded the Scalable Internet Protocol Package Remote. The SIP2R is an "everything over IP" transit case baseband system utilizing iDirect modem technology. When combined with the

transport capability of the Phoenix terminal, the SIP2-R delivers secure voice and data connectivity to battalion and battalion-plus size elements like a CJSOTF.

Experience in OEF and OIF shows that multichannel SATCOM systems that "reach back" to CONUS to reach their data store, or to reach out to a neighboring unit in theater, experience performance degrading latency. To solve the latency problem, and "keep theater traffic in theater", the 112th developed a mobile SATCOM hub as part of the SIP2R architecture known as the Interim Hub Node. The IHN uses an iDirect hub to terminate SIP2R nodes and SOFTACS systems in theater and can be directly connected to the DISN. The IHN then eliminates the latency associated with reaching back to CONUS and provides SOF a deployable and JITC certified DISN gateway. Additionally, the battalion chose to integrate Riverbed network accelerators to enhance performance of the SIP2R architecture.

Having proved the value added benefits of a mobile SATCOM hub to SOF, SOCOM has developed and fielded the first Mobile SOF Strategic Entry Point to the 112th SB based on the IHN model. The 112th deployed the first MSSEP to the CENTCOM AOR in May of 2010, which along with the IHN continues to provide service to SOF customers throughout the AOR.

Members of the 112th SB pride themselves as a source of technical expertise for the larger SOF community. The battalion has maintained a SYSCON in theater since the kick off of OIF and in May of 2010, combined its SYCON with the Special Operations Command Central Joint Network Control Center. The 112th's SOF experienced

officers and NCOs who manage the JNCC on SOCCENT's behalf serve as the NETOPS for the majority of SOF deployed in the CENTCOM AOR.

Shadow Week 2011

The 112th SB enjoys an active alumni which annually gathers at Fort Bragg to celebrate the battalion's organizational week known as "Shadow Week." Shadow Week coincides with the annual USASOC C4I Conference and includes a technology exposition, conference meetings, alumni socials, the battalion dining out, and recreational events for current Soldiers and alumni.

Shadow Week 2011, held in March 2011, was particularly special as the battalion celebrated its 25th anniversary since its reactivation. Special events this year included the ribbon cutting of the battalion's new headquarters complex and the unveiling of a 25th Anniversary

(Photo by Sharilyn Wells)

MG USA (Ret) James "Dave" Bryan *(right)* **and artist Stuart Brown at the ceremony marking the ribbon cutting of the new 112th Signal Battalion Headquarters and the unveiling of the 25th Anniversary painting on 21 March 2011.**

painting celebrating the unit's service past and present. Special guests at the ribbon cutting ceremony included the first commander of the 112th Signal Battalion (SO)(A), MG James "Dave" Bryan, and the 25th Anniversary painting artist Stuart Brown.

Conclusion

The 112th SB remains poised to deliver flexible and reliable communications support to Special Operations Forces well into the future. As conventional units redeploy as part of the drawdown in Iraq and Afghanistan, SOF forces may be asked to remain as a stabilizing force. The departure of conventional forces will mean that long haul theater communications will also depart, creating ever more reliance on tactical systems provided by the 112th SB.

MAJ Chris Keeshan *is the former Executive Officer of the 112th Signal Battalion (2010-2011). He served four years in USASOC including assignments as the 4th PSYOP (Airborne) Group S6, 3RD PSYOP Battalion (Airborne) S3, and the 112th SIG BN Theater Signal Support Company commander. MAJ Keeshan has also served in the 35th Signal Brigade, the 1st Cavalry Division, and the Department of the Army CIO G6. He is currently a student at the Command and General Staff College at Fort Leavenworth, KS.*

ACRONYM QuickScan

ARFORGEN - Army Force Generation
CJSOTF - Combined Joint Special Operations Task Force
CONUS - Continental United States
DISN - Defense Information Systems Network
GIG - Global Information Grid
HHC - Headquarters and Headquarters Company
IHN - Interim Hub Node
JITC -   Joint Interoperability Test Command
JNCC - Joint Network Control Center
JORTS - Joint Operations and Readiness Training System
MSSEP - Mobile SOF Strategic Entry Point
NETOPS - Network Operations
OEF - Operation Enduring Freedom
OIF - Operation Iraqi Freedom
OND - Operation New Dawn
OPCON - Operational Control
OPTEMPO - Operational Tempo
ORS - Operational Readiness Survey
PMT - Pre Mission Training
POR - Program of Record
SATCOM - Satellite Communications

SDN - SOF Deployable Node
SIE - SOF Information Environment
SIP2R - Scalable Internet Protocol Package Remote
SOCAFRICA - Special Operations Command Africa
SOCCENT - Special Operations Command Central
SOCEUR - Special Operations Command Europe
SOCKOR - Special Operations Command Korea
SOCPAC - Special Operations Command Pacific
SOCSOUTH - Special Operations Command South
SOF - Special Operations Forces
SOFTACS - Special Operations Forces Tactical Assured Connectivity System
SSD - Special Operations Forces Signal Detachment
TSOC - Theater Special Operations Command
TSSC - Theater Signal Support Company
USASOC - United States Army Special Operations Command
USCENTCOM - U. S. Central Command
USSOCOM - U. S. Special Operations Command

Digital Training and Doctrine Division

By Patrick S. Baker

Relevant professional education and training is available to Signal Soldiers no matter where they are in the world because of the Digital Training and Doctrine Division at the Signal Center of Excellence.

The DTD G-3/6 of the G-3/5/7 has five branches: Distributed Education Branch, Critical Task Management Branch, Gaming Integration Branch, Doctrine Development, and the LandWarNet e-University.

Distributed Education Branch

The primary mission of the Distributed Education Branch is to provide oversight of distributed learning resources and provide technical expertise for the acquisition process for Interactive Multimedia Instructional products and to be the Signal Center of Excellence's liaison office to TRADOC/CAC/ ATSC for all Army Learning Model initiatives pertaining to distributed Learning. The organization accomplishes this mission by providing project management services and quality assurance for all Interactive Multimedia Instruction developed for the SIGCoE to include coordinating approval, funding, development, and distribution of all SIGCoE IMI. Additional oversight responsibilities include coordinating the implementation of all Army Enterprise Classroom Program initiatives at the SIGCoE.

The experience and work efforts of the staff have historically supported decisions made by course managers concerning choices/decisions

U. S. Forces can take advantage of education and training opportunities through a variety of tools delivered electronically anywhere in the world.

on how instruction is best delivered by technology and what is best conducted face-to-face or hands-on. The technology incorporated in institutional training to date has allowed the SIGCoE to expand the reach of individual and collective training to soldier/leader locations and employ the same familiar delivery means to units in an integrated training environment supporting both individuals and units.

Specifically, the DEB has accomplished the following actions in support of its mission:

(1) Developed over 30 active dL courses/products by the end of FY11 which resulted in 50,000 students receiving instruction via dL and other learning technologies (Number of students given represents those enrolled in courses taken to support resident/nonresident/ sustainment/NET/MTT training on-line each month via the Fort Gordon LifeLong Learning Center Open Enrollment and Unit Universities (Blackboard Server)). Interactive multimedia instruction greatly enhances and standardizes instruction for Active Component and Reserve Component units throughout the Force when self-development, sustainment, refresher and remedial training are conducted. The following Virtual/PC-based simulators and CBTs are available via the LandWarNet e-University (https://lwn.army. mil) web portal to facilitate communications equipment operations training:

(2) Support of Connecting Soldiers to Digital Applications Initiative: The DEB has the sole responsibility to validate the content distributed through mobile applications for Signal-related topics in support of the efforts to institutionalize CSDA. Validating Signal-related Apps on an on-going basis will allow the Signal Center to further exploit the value of providing Soldiers with digital applications on Mobile Electronic Devices to provide mobile learning and operational app products at the point of need for all three domains of Army learning; Institutional, Operational and Self Development.

(3) Served as a "quality control" agent and life cycle manager for existing Signal dL products. Dedicated,

qualified personnel monitor the development, fielding and maintenance of new and existing IMI in the SIGCoE courseware inventory to ensure the courseware is readily available for use via the LWN eU Blackboard Server 24x7. There are currently 32 fielded PC-based Simulators and four Computer Based Training products in the inventory. Approximately 12 more IMI products are being planned for development between now and FY14.

(4) Facilitated Army Enterprise Classroom Program classroom upgrades at the SIGCoE. The major objective of the AECP is to provide a vehicle for all TRADOC installations to "modernize" all classrooms used for training to ensure they are configured to support 21ST Century training technologies. The DEB coordinates installation of all AECP technology upgrades for IT/audiovisual equipment for all existing training classrooms on Fort Gordon. The AECP also includes Classroom 21 Program operations.

(5) Performed Audio Visual Production Officer responsibilities. The DEB coordinates the development and review of the Signal Center's Graphic Training Aids, Army Correspondence Course Program; Signal sponsored Multimedia Visual Information Products to include the

Gaming and virtual programs place learners in realistic environments to complete scenario driven exercises.

production and approval of training films, television tapes, and Army Recruiting Information Support System video tapes for Signal Corps military occupational specialties.

Critical Task Management Branch Mission

The branch's main mission is to conduct training needs analysis and mission analysis for all Signal Regiment organizations Table of Organization and Equipment. Also to develop Combined Arms Training Strategies products, Warfighter Training Support Packages, collective tasks, and drills to support unit training. Further, the Branch implements the Critical Task/Site Selection Board processes in accordance with Fort Gordon Regulation 350-7.

Also, one branch members serves as Training Development Capability system administrator for over 300 SIGCEN training developers providing database support for Programs of Instruction, lesson plans, critical tasks, Warrior Training Support Packages, training equipment data, and other training support materials.

In Fiscal year 11 the Branch published 23 Combined Arms Training Strategies to support unit training across the Signal Regiment. Designed, developed, and implemented on-line training support system for CT/SSB processes, Training data table updates, and TDC account transaction requests that reduced overall processing time by 60% and Met all Collective Training FY11 TRADOC Accreditation Requirements.

In FY12 the Branch plans to publish 20-30 Combined Arms Training Strategies products covering functional and multi-functional Brigades through the Army and also to develop, test and publish Command Post Exercise – Functional Brigades Training Support Packages to support Signal Brigade training at Combined Arms Training Centers.

Gaming Integration Branch

The primary mission of the Gaming Integration Branch is to provide gaming or virtual training solutions that address training requirements across the Signal Regiment. The organization accomplishes this mission by providing informational briefings on capabilities and available products, providing demonstrations of

technology, developing training scenarios, and assisting in the implementation of training plans. The primary tools available for gaming initiatives are the Army's gaming flagship program, Virtual Battle Space 2, 52 system suite of laptops that host the software, and the Nodal Network Simulator.

The Gaming Branch consists of one functional area 57 (Simulation Officer) and a currently unfilled 25 series Sergeant first-class. The use of virtual worlds and gaming technology is scheduled to drastically increase across the Army due to the relatively low overhead cost, the ability to replicate training scenarios, and the advantage of running multiple iterations without wear on personnel or equipment.

Specifically, the Gaming Integration branch has accomplished the following actions in support of its mission: Coordinated and executed an 80-hour operator and administrator VBS2 course at Fort Gordon. The course, taught by TCM-Gaming, provided overall capabilities of the system, scenario development instruction, after action review techniques, and best practices for 21 training developers across the installation. Training developers could then return to their organization better equipped to tackle training challenges in a resource austere environment.

The branch provided 10 informational briefings and demonstrations of gaming solutions for training across the installation. The following list briefly describes the approved Army Games for training (available at https://milgaming.army.mil)

Army Approved Games for Training

Virtual Battle Space 2 (VBS2, flagship program) – 3D first person games-for-training platform that provides realistic semi-immersive environments, large, dynamic terrain areas, and ability to develop scenarios that support unit training objectives.

Virtual Battle Space 2-Fires – advanced call-for-fire model for VBS2 that simulates artillery, naval gunfire support, mortars and MLRS to a high level of detail.

Moral Combat – training software program that transforms traditional Army ethics education by injecting a series of challenging ethical scenarios into a 3D first person game.

Elect Bilat – 3D software simulation designed with a specific training objective; to provide an immersive and compelling training environment to practice skills in conducting meetings and negotiations in a specific cultural context.

Operational Language – suite of self-paced interactive programs that enable rapid and sustained learning of foreign languages and cultures (Iraqi, Dari, and Pashto).

UrbanSim – PC-based virtual training application for practicing the art of battle command in a complex counterinsurgency and stability operations.

Established a training network of 20 VBS2 systems at FOB Dunham in support of the Mercury Fusion Capstone event. The training facilitators are using the VBS2 systems to reinforce basic skills that the Soldiers had learned in their initial combat training. Additionally, the use of VBS2 allows facilitators to better instruct and practice required training on the Warrior tasks and battle drills. Virtual training will never be able to completely replace live training, but in a world of limited resources, limited time, and limited money gaming can help bridge the gap.

Selected to serve as the Connecting Soldiers to Digital Applications lead for the Signal Center. The Gaming Integration Brach will ensure that any application, where the Signal Center is the proponent of the content, is accurate and correct before receiving permission to be posted on the Army Store Front.

Future projects include refining the virtual Fort Gordon terrain for use in VBS2 or other gaming solutions. Many organizations want to utilize VBS2 as a means for rehearsals or for the crawl and walk phase of training; the ability to utilize recognizable terrain and surroundings makes the training much more immersive. The Gaming Integration Branch will coordinate with the National Simulation Center and TRADOC Capability manager for Gaming on a hardware refresh for the VBS2 suite and will also be upgrading the VBS2 software.

Doctrine Branch

The Doctrine Branch manages the Signal Regiment Doctrine Publication Program in accordance with U. S. Army Training and Doctrine Command regulations. The Doctrine Branch identifies requirements for new publications, revisions to existing publications, developing and revising selected multi-Service, joint, multinational doctrine publications, and polices and governing regulations. The Doctrine Branch ensures Signal Regiment doctrine is integrated, with higher-level Army, multi-Service, multi-national, and joint doctrine developers—avoiding conflict with other Army doctrine. The branch develops and maintains Doctrine's Army Knowledge Online, LandWarNet eUniversity and SharePoint portals. The Doctrine
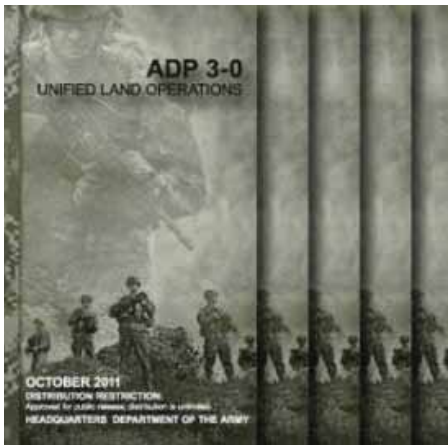
The Doctrine Branch manages the Signal Regiment Doctrine Publication Program in accordance with U. S. Army Training and Doctrine Command regulations.

Branch also governs the Signal Regiment Lessons Learned Program, which coordinates with, and receives feedback from, signal operational units to verify and validate Army observation, issues and lessons learned—a key driver for changes in doctrine. The Doctrine Branch also provides doctrinal subject matter expert support for multiple Integrated Capabilities Development Team actions for critical mission area requirements in support of Army LandWarNet and Army transformation incentives.

During the previous year, Doctrine was still a section under the Signal Center of Excellence's Concepts, Requirements, and Doctrine Division. Doctrine continued to write the new capstone manual for Signal, FM-602: Signal Support to Army Operations, while updating other supporting field manuals for Signal. Additionally, the Doctrine Section reviewed for comment over 130 various doctrine publications and products from joint-service and Army centers and schools. In FY 11, the Signal Lessons Learned team visited and/or interviewed 21 army units, designed and implemented a user-friendly SLL website on the LWN eUniversity portal, and identified as on the of the top three lessons learned sections in TRADOC.

With the implementation of the TRADOC's new Doctrine 2015 concept, Signal Doctrine, along with all other Army schools and centers, is completely transforming all doctrine publication to a more streamlined, intuitive and relevant set of publications. The FM 6-02: Signal Operations is being completely restructured as the Signal Regiment's single, capstone Field Manual. All other doctrine publications, Army Technical Publications and Training Circulars, will precipitate from FM 6-02. These doctrine publications will all be made available in draft versions online (and wiki versions) for the Signal community and army-wide input before final publication. With the transformation to Doctrine 2015, Signal Doctrine is now a branch within the Digital Training Division and Signal Center of Excellence G3/5/7. Under Doctrine 2015, the Signal Lessons Learned team will be focused on affecting changes to signal doctrine based on their products.

LandWarNet e-University

LWNeU is a TRADOC multiple award winning Distributive Learning operation and the flagship for Army Distributive Sustainment Training. LWNeU provides on-line delivery of Signal MOSQ, Communications and Information Technology sustainment training for all Army Soldiers, Units and Department of the Army Civilians. LWNeU hosts the enterprise on-line MOS and
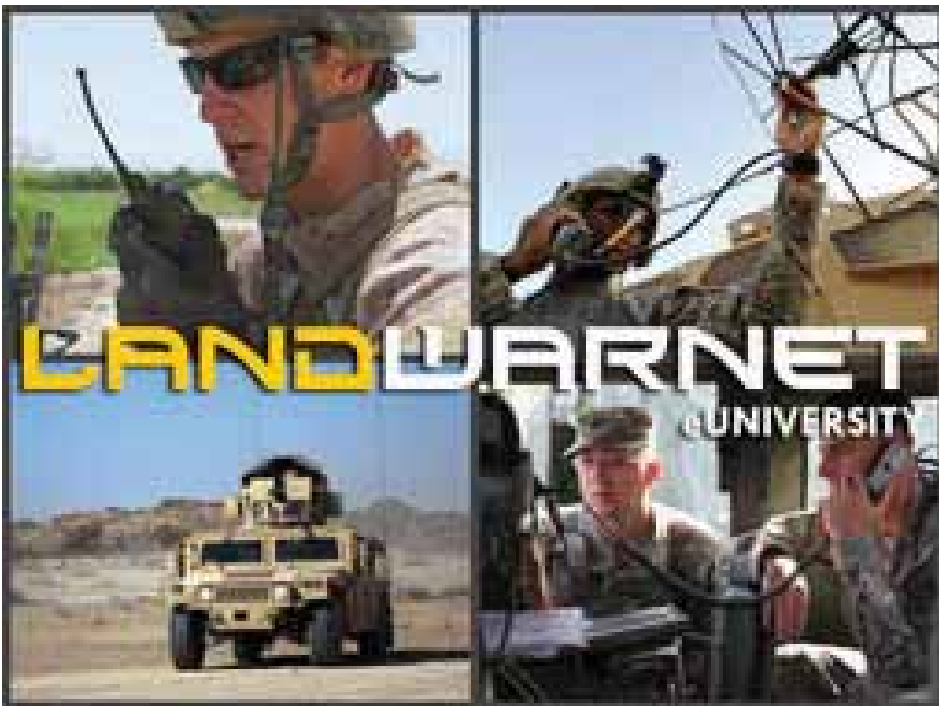
LWNeU is a U.S. Army Training and Doctrine Command multiple award winning Distributive Learning operation and the flagship for Army Distributive Sustainment Training.

distributed learning capability on SIPR for all TRADOC Proponent Schools. LWNeU also delivers C4 and unique IT training for all Army Network Enterprise Centers and a tailored on-line C4 battle command system sustainment training capability for all FORSCOM Units. LWNeU responds immediately to any training request and works to alleviate training deltas for Soldiers and Units located anywhere in the world.

In 2009, LWNeU pioneered an on-line blended learning solution for Army RC Signal MOS-T (MOS Transition). This initiative has grown to where LWNeU now supports 18 USAR/ARNG Regional Training activities saving over $62 million in Unit training funds during FY10/11. LWNeU also invented and hosts web-training portals for individual Units (Unit Universities) that contain sustainment training, Simulations, and Web-based training for Army/Joint Units and NECs. LWNeU currently hosts and manages 675 Unit Universities supporting Soldier and Unit training in all phases of the ARFORGEN and all theaters of operation.

LWNeU upgraded its on-line training capability this year with the launch of a new LWNeU Portal system (lwn.army.mil). The new portal provides access to all available LWNeU on-line sustainment training products directly from the portal. All training products, courses and simulations are now organized into training wikis and categorized by equipment type, assemblage, or task. You can either browse for training products by selecting a wiki in the training category or use the search function to search the entire training content area to find a specific training product quickly. Can't find what you need? Every training wiki and the LWNeU Main page have a link that will assist you to request additional training.

Patrick Baker *entered civil service in September 1998. He is a graduate of the Department of the Army Training Development Intern Program. After completing the intern program, Mr. Baker was assigned as a Training Developer in the Regimental Officers' Academy. He then moved to the U.S. Army Computer Science School where he also worked as a Training Developer for Warrant Officers Professional Military Education. This was followed by assignments in the 15th Signal Brigade as the 25Q Training Developer and Chief of the Area Communication Training Development Branch. He has served in his current assignment since 2007. He also holds degrees in Education, History and Political Science.*

ACRONYM QuickScan

AC- Active Component
ACCP - Army Correspondence Course Program
AECP - Army Enterprise Classroom Program
AKO - Army Knowledge Online
ALM - Army Learning Model
ARISS - Army Recruiting Information Support System
AVPRO - Audio Visual Production Officer
CATS - Combined Arms Training Strategies
CBT - Computer Based Training
CPX-F - Command Post Exercise – Functional Brigades
CRDD -Concepts, Requirements, and Doctrine Division
CRXXI - Classroom 21

CSDA - Connecting Soldiers to Digital Applications
CT/SSB - Critical Task / Site Selection Board
DEB - Distributed Education Branch
dL - distributed Learning
DTD - Digital Training and Doctrine Division
FORSCOM - U. S. Army Forces Command
GTA - Graphic Training Aid
ICDT - Integrated Capabilities Development Team
IMI - Interactive Multimedia Instructional
LLC - LifeLong Learning Center
LWN-eU - LandWarNet e-University
MED - Mobile Electronic Devices

MOS - Military occupational Specialties
MTT – Mobile Training Team
NET - New Equipment Training
NNS - Nodal Network Simulator
OILs - Observation, Issues and Lessons
RC - Reserve Component
SIPR – Secret Internet Protocol
SME - Subject Matter Expert
TCM – TRADOC Capabilities Manager
TDC - Training Development Capability
TOE - Table of Organization and Equipment
TRADOC - U. S. Army Training and Doctrine Command
TSP - Training Support Packages
VBS2 - Virtual Battle Space 2
WTSP -Warfighter Training Support Packages

54th Signal Battalion sets performance benchmark

By MAJ Lincoln F. Williams

According to MAJ Lincoln F. Williams, battalion S-3, the 54th Signal Battalion has made history as the first deployed Signal battalion to successfully pass the Department of the Army Inspector General Information Assurance inspection.

In the Fall of 2011, "The Voice of the Desert" faced inspectors for the second year in a row. During the previous inspection the battalion's evaluation indicated 12 of 14 functional areas failed to meet standards established by one of the most rigorous Army inspections. During fiscal year 2010 only four of 18 organizations met the standards established by the DAIG IA.

LTC D. Kelvin Green, battalion commander and CSM Darris Curry were notified of the upcoming inspection less than three months before inspectors were scheduled to arrive in Kuwait. With the USF-I withdrawal from Iraq in full swing and other mission priorities on the increase, the command team redistributed resources to meet the new challenge without losing sight of ongoing missions.

Significant pre-inspection coordination was a key factor in achieving a successful inspection. Direct communication and coordination with the DAIG IA team members before their arrival allowed the unit to gain a sense of the inspection's scope and assign personnel to specific areas of concern. The pre-inspection evaluations revealed that the unit needed to be more inclusive and detailed to successfully cover all 14 functional areas.

Subject matter experts were assigned to each functional area. Oliver Jones and Gabriel Johnson, U.S. Department of the Army civilians, orchestrated the team assignments which included 1LT Kevin McFerrin, SFC Reginald Cox, SFC Kiteola Jackson, SSG Carlton Stephens, Keith Creiglow and LeAndra LaMons and three contractors.

The SMEs were responsible for more reviewing and inspecting their prospective area to ensure compliance with required standards. As the team members' familiarity with each functional area increased, they realized that DAIG inspectors would search for answers in areas outside of the battalion's direct control. Other organizations, such as Army Central Command, 335th Theater Signal Command, Southwest Asia Cyber Center and 160th Signal Brigade, played a big part in the overall success of the inspection, since each organization was responsible for compliance within their prospective work areas.

As a result of coordination and synchronization with local units, the team member's confidence grew and expectations were high. On 18 September 2011, the DAIG inspection commenced. Just as in the previous year, the inspection was extremely challenging, but the team was well prepared. Five days after the inspection began, DAIG inspectors presented the results: 54th Signal Battalion "met the standards" in 12 of the 14 functional areas—a remarkable turnaround from the previous year's results.

Most impressive according to LTC Green is that the passing score was achieved by a deployed unit in austere conditions. This is remarkable because deployed units don't always have the ready resources like CONUS units, he said.

"This achievement is truly remarkable, and it will definitely leave a mark in time," said MAJ Lincoln F. Williams 54th Signal Battalion S-3, "because the 54th Signal Battalion was the first deployed theater Signal battalion to pass the DAIG [inspection]. Many will remember this achievement."

According to its leaders, the battalion's success can be directly attributed to the networks established through building relationships based on exceeding the needs of customers throughout the region. Members of the Signal community repeatedly demonstrate an unlimited potential whenever leveraging resources to achieve a common goal.

MAJ Lincoln F. Williams *currently serves as the S-3, 54th Signal Battalion, Kuwait, Arifjan. He manages the operations for 9 camps consisting of 14 sites throughout Kuwait, Qatar, Saudi Arabia, and Bahrain. In his previous assignment, he served on the staff of the 160th Signal Brigade as the Engineer and Integration OIC. MAJ Williams is a 2010 graduate of the resident Command and Staff College, Fort Leavenworth, Kansas.*

A Signal perspective:

By LTC Neil Khatod and
MAJ Anthony S'Chevalier

Not so long ago we might have asked the question in a different way. But the Joint and Allied Doctrine and Concepts Branch recently reminded us that "full spectrum" has devolved into a cliché that does not adequately describe Army doctrine and commander mission activities.

So herein we offer a tested response to the question, "How do we successfully integrate Signal functions into unified land operations?" This is essentially the same question previously posed in warfighting discussions, leader development sessions, and within the doctrine developers at U.S. Army Training and Doctrine Command—"How do we fight full spectrum operations?"

The experiential answer is, our units must dominate through fire and maneuver for the high intensity fight while transitioning to a wide area security mission.

The challenge is how to structure the force for follow-on training and future operational preparations. As a first step, the 173rd Airborne Brigade Combat Team out of Vicenza, Italy recently was put to this test at the Joint Maneuver Readiness Center in Hohenfels, Germany, and we found that many of the lessons and techniques for our Army Force Generation-based deployments to Iraq and Afghanistan work well in unified land operations while others simply do not work in an austere environment. From this rotation, we were able to draw three main communications conclusions. First, we need practice in setting up initial communications into an austere environment. Second, there must be a detailed

> *Our units must dominate through fire and maneuver for the high intensity fight while transitioning to a wide area security mission.*

and rehearsed plan to migrate from single channel communications to the digital. Third, we must understand that wideband network systems and expeditionary operations depend upon strong enterprise to expeditionary network synchronization.

The rotation began with a forced entry, airborne operation that sought to seize a foothold into the area of conflict. By rule airborne operations are joint, complicated, and risky. Soldiers jump into harm's way with only the gear they can carry and the few items they can drop from the aircraft; this is a far cry from the heavy armaments and communications platforms we depend upon in the current Southwest Asia Theater.

From a communications perspective the airborne operations provided a significant departure from our normal practice. Soldiers had to rely on the Single Channel Radio network for communications; although we use single channel downrange, over the years we have begun to rely on unmanned relays, vehicle-based blue force tracker, and local cellular capabilities to communicate. Although these systems have been huge combat multipliers, they have eroded our ability to plan, support, and execute operations with the limited Multiband Inter/Intra Team Radio and Single Channel Ground and Airborne Radio System networks we are authorized. As can be imagined, the first 36 hours required significant effort to position key mission command and warfighting functions nodes to mitigate the line of site challenges; key nodes such as the Single Channel C2 HMMWV, dismounted and mounted retransmitter, and Single Channel TACSATs were key. However, many of these key items were not available as some of these platforms were not in the first chalks of airflow to re-enforce operations on the drop zone. Furthermore, the Single Channel TACSAT network used the new integrated waveform protocol--a replacement for the shared Demand Multiple Access Protocol. Although this protocol provides much more capability with the limited satellite infrastructure, it is neither well understood nor intuitive. The IW training and equipment challenge plagued the rotation for its entirety. To resolve this, the JMRC leadership borrowed a wideband satellite segment to mitigate the risk. An important lesson learned for future operations is that the initial single channel

How to fight unified land operations

U.S. Army Soldiers, 173rd Airborne Brigade Combat Team, conduct a dismounted patrol during a joint training exercise at the Joint Multi-National Training Center, Hohenfels, Germany. A CH-47 Chinook helicopter can be seen (background) departing the area.

communications platform is as critical as the initial Howitzers blasts on the battlefield.

Great pressure emerged to migrate from Single Channel Radios to the WIN-T based, digital network as the team brought in follow-on forces. Since the force does not do this in preparation, deployment or operations downrange, this transition did not go as smoothly as necessary for the commander.

We encountered some challenges as we made the migration. First, the knowledge management and reporting completely changed when moving from one system to another. These techniques and procedures were not as well defined, trained and understood to be effective. As a result, the 173rd was receiving hodgepodge reporting from its battalions for almost a week. Second, many battalions struggled to come

up on their WIN-T equipment and Army mission command systems. The delay of a few battalions caused friction in the information sharing effort. Third, the reporting structure had to be retooled to account for the fact that battalions still maintained single channel reporting from the companies, transition the information into the digital systems, and then report to brigade. This swivel chair system at battalion is time consuming, but necessary.

In the future, FSO communications require a detailed, conditions-based transition plan that is well rehearsed and understood. This plan and rehearsal must involve commanders at every level as the transition impacts more than Signal. It can be the limiting factor or major enabler for mission command.

The third major lesson learned from the rotation is that there is a significant need to synchronize the efforts of the tactical, imbedded Signal formations with the enterprise network organizations. This synchronization spans three major areas: Technical training oversight, network operations and integration, and problem resolution. In CONUS the division headquarters regularly performs the training readiness oversight portion of these tasks and as needed integrates with the program managers and Signal commands to resolve large-scale issues for the BCTs; however, in Europe or even in CONUS when the divisions are gone, this task often times falls on the theater

tactical signal brigade and its expeditionary signal battalions as they have the skill sets and reach into the enterprise to resolve larger issues.

Brigades have a very low density of Signal Soldiers and even lower density of the key technicians to keep a network running. This low density creates a problem when separated; as an example if one member of a four man command post node team isn't trained to standard, it creates huge impacts on the overall mission. To mitigate this problem, MG Alan Lynn, U.S. Army Signal Center of Excellence commanding general, as part of the Signal Functional Area Assessment, has developed a concept to co-locate and integrate

U.S. Army Pfc. Taylor Cardinale, from 1st Platoon, Charlie Company, 2nd Battalion, 503rd Infantry Regiment, 173rd Airborne Brigade Combat Team, calls in grid coordinates over a tactical satellite radio in the Kunar province of Afghanistan 20 March 2008.

the efforts of like skills to conduct what he calls, "Intellectual Pooling." To accomplish this task, imbedded BCT communications companies and teams are given general support from an ESB. By combining training efforts, deployment preparatory tasks, and maintenance training, the imbedded organizations can better sustain technical proficiency in their small population. Over time, this concept may expand to the movement of Soldiers between organizations based on ARFORGEN and need. Currently, the 72nd ESB is working to synchronize the 173rd Signal Company's training with its preparation of an expeditionary signal company.

The second network support task the BCT requires is a higher level command to integrate network operations reporting and network health management. The BCT never fights on its own network as it must plug into the rest of the Force. More often than not this requires integration between the enterprise connections and network services with the BCT's Army Battle Command Systems and network services. This integration is complicated and requires a broader view while having someone focused on their problems. In other words the Higher Level NETOPS organization must be able to see into the larger enterprise and down into the BCT to aid in resolving problems. For this rotation, the 72nd ESB, who was re-enforced with strategic assets from the European Theater Network Operations and Security Center and 69th Signal Battalion, performed this task; however, that role was not a part of the original plan. For follow on rotations we should codify the relationships, reporting, and HICON strategy to more effectively support the BCT.

Finally, building on the HICON point, the BCT needs someone who can organize and integrate all communications stakeholders from the Army and Joint community to resolve higher level issues. These stakeholders span Defense Information Systems Agency, the Signal Command, the Program Executive Office for Command, Control and Communications-Tactical, and Communication Electronics Command. By having units reach out on behalf of the BCT, we were able to integrate all the greatest minds to resolve problems for the BCT. Without this integrating function, the BCT would not have been able to resolve critical routing issues that limited the effectiveness of data flow up and out to its higher headquarters. At the end of the day, the PM, Regional Hub Node, 5th Signal Command, 72nd ESB, and the 173rd resolved a complicated routing issue, provided lessons learned to the Army, and created new world-wide configurations to preclude other instances

of the problem. It is that level of teamwork that is necessary to effectively integrate these experts.

The 173rd BCT's full spectrum rotation was a difficult one; it came early after the brigade redeployed from Afghanistan. However, it was an important learning opportunity as it highlighted many training and equipping issues that the Army must face as we move to full spectrum operations. To be effective, we must relearn the single channel fight, develop new procedures to move from single channel to the digital, ABCS-based mission command, and we must more effectively integrate the expeditionary with the enterprise.

LTC Neil Khatod *is the*

commander of 5th Signal Command's 72nd Expeditionary Signal Battalion. Khatod brings a varied set of experiences to operations as has worked tactical assignments in Signal battalions spanning platoon leader through battalion executive officer, Infantry battalion and brigade S6 jobs, and combat developer duties in TRADOC where he helped develop the modular Signal Force that shaped both the ESB and BCT. He holds an MSIT from University of Maryland University College, Master of Human Resource from the University of Oklahoma, and a Bachelor of Science from the U. S. Military Academy.

MAJ Anthony S'Chevalier *is the S6 of the Joint Multinational*

Readiness Center at Hohenfels, Germany. MAJ S'Chevalier's Signal background is primarily in the tactical field of communication. MAJ S'Chevalier's past assignments include the brigade S6 for 173d Airborne Brigade Combat Team, SOCEUR Signal Detachment commander, 112th Signal Battalion and Charlie Company 82nd Signal Battalion, 82nd Airborne Division. He has also severed as a battalion S6 within the 82nd for 1/505th Parachute Infantry Regiment. His degrees are a Master of National Security and Strategic Studies from the Naval War College, and a Bachelor of Economics from the University of Texas in Austin.

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Acronym QuickScan

ABCS - Army Battle Command Systems
CPOF - Command Post of the Future
DCGS-A - Distributed Common Ground System

\- Army
PEO C3T - Program Executive Office Command, Control and Communications-Tactical

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Developing multi-discipline MOS-independent communicators

By CPT Mary Crawford and
MAJ Ken Rutka

Leaders of the Joint Communications Unit are charging ahead in the U.S. Army Signal Corps drive toward creating multi-disciplined communications Soldiers.

Since its establishment in 1980 the leaders of the Joint Communications Unit have embraced the concept of MOS independence. Based out of Fort Bragg, N.C., JCU is an all volunteer unit that consists of communicators from the Army, Navy, Air Force and Marines with diverse backgrounds and varied experiences.

All enlisted personnel selected into JCU must complete six months of intensive communications and tactical training known as the Special Operations Radio Operators Course. SOROC curriculum encompasses Radio Telephone Operator procedures, LAN/WAN Networking, SHF/Transport and Server Services/System Administration. At the completion of six months of rigorous training, students graduate as holistic communicators and have become true multi-disciplined service members, regardless of rank, service or MOS.

JCU's success in creating a multi-disciplined communicator starts with the six month SOROC course. SOROC serves as the JCU training and assessment program designed to determine if individuals have the technical capacity and physical conditioning required to meet the unit motto, "DoD's Finest Communicators." That communicator must prove to be capable of establishing and maintaining voice, video, and data communications in any environment, to support any mission, independently or as a member of a team. A JCU member must be an MOS agnostic communicator capable of performing a multitude of functions across the Command, Control, Communications, Computers and Intelligence spectrum from tactical to strategic operations.

Although that mindset is trained and employed on a daily basis in JCU, it starts with SOROC. Resourcing and flexibility are absolutely critical factors needed in order to create this type of communicator. Eight professional communications instructors are dedicated to teaching two classes a year with a maximum class size of 36 students.

In conjunction with the instructors, a Training and Academic Counselor Non-Commissioned Officer tracks student progress and provides mentorship throughout the course. Class instruction is augmented by seasoned JCU communicators, as required. JCU Line Troop Sergeants Major are required to critique courseware once per module of instruction.

Furthermore, Troop SGMs validate and modify the Program of Instruction twice a year in order to keep the information relevant. Additionally, each student has near unrestricted access to perform hands-on training with course equipment. While all of these factors are critical to the success of SOROC, they must be matched with a challenging, broad based POI.

SOROC teaches theory, fundamentals and critical thinking. Students learn how the equipment set operates the way it does, not just how to make it work. While students graduate with Network+ and Security+ certifications, SOROC does not teach checklists, nor is it a boot camp for certifications. First and foremost, SOROC begins with a month long tactical portion which teaches marksmanship, patrolling, land navigation and advanced driving.

Immediately upon completion, students begin four cumulative modules of technical training and testing:

SOROC Module I is the baseline that consists of the Physical Layer and initial communications. It is classified as the RTO module of training. This section covers power, cabling, cryptography, numerous radio operations, secure telephone, and logistics/hand receipt accountability.

SOROC Module II focuses on LAN/WAN Networking. It is broken down into two subsections: IP Based Networks and Network Services. IP Based Networks covers: local area networking, wide area networking, and secure tunneling/VPN. The Network Services portion includes: Voice-over-Internet Protocol (VoIP), Radio-over-IP, and multicasting.

SOROC Module III is the SHF/Transport section. In this module students receive training on 1.2m, 2.4m, and 3.7m SATCOM Ground Terminals, and numerous state-of-the-art downsized deployable package configurations. This module includes the transport equipment string required from a modem though various types of encryption, down to routers providing services at all levels of classification.

SOROC Module IV is the Server Services/System Administration portion of training. This training is also broken down into two subsections: Data Services and Support Structure. Data Services encompasses: Windows Active Directory, back-up technologies, and web/portal. The Support Structure portion covers: Remedy, support hierarchy, and help-desk level support for major applications.

At the conclusion of each module, students undergo a three day communications exercise and must pass a hands-on test and written exam. Students are authorized one retest, but if they fail the retest they are immediately dropped from the course and reassigned to the needs of their Service. SOROC concludes with a 10-day culmination exercise to validate the students' ability to demonstrate the principles they've learned. Upon successful completion of the final exercise students are formally accepted as one of "DoD's Finest Communicators" and assigned to JCU.

SOROC takes in students with a variety of communications specialties from all Services and produces a well-rounded communicator capable of participating in a wide range of missions, with skill sets spanning the spectrum of C4I proficiencies. A course like SOROC requires dedicated professional instructors, active leadership involvement, nonnegotiable standards, hands-on access to the latest equipment, and a flexible POI that can be adjusted when needed. As the Signal Corps examines MOS consolidation, JCU and the SOROC model should be examined to gain an understanding of how to create a multi-disciplined communications Soldier.

For more information about JCU go to www. jcuonline.org

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ACRONYM QuickScan

C4 I - Command, Control, Communications, Computers and Intelligence
DoD - Department of Defense
IP - Internet Protocol
JCU - Joint Communications Unit
LAN - Local Area Network

MOS - Military Occupation Specialties
POI - Program of Instruction
RoIP - Radio-over-Internet Protocol
RTO - Radio Telephone Operator
SATCOM - Satellite

Communications
SHF - Super High Frequency
SOROC - Special Operations Radio Operators Course
TAC - Training and Academic Counselor
VoIP - Voice-over-Internet Protocol
WAN - Wide Area Network

Geospatial Information best practices

By MAJ Christopher Blais, CW2 Joshua Stratton and MSG Moise Danjoint

The fact that Geospatial information can be codified and displayed to convey large amounts of critical data in one place was never more apparent than when leaders gathered in Baghdad near the end of that operation.

On 4 June 2011 in the Chancery of the U.S. Embassy, Baghdad, Iraq, Alcy Frelick, U.S. Embassy Baghdad Office of Provincial Affairs director, hung a four-by four-foot map depicting more than 70,000 civil capacity projects and programs completed in Iraq during Operations Iraqi Freedom and New Dawn at a cost exceeding $58 billion (Figure 1).

This intricate product was created in response to a request by LTG Frank Helmick, U.S. Forces – Iraq, deputy commanding general for operations, for a map detailing the U. S. Government's direct investment in Iraq since 2003 to support Key Leader Engagements with Government of Iraq senior leaders. With the creation of the U. S. Civil Sector Improvements Map (Figure 1), USF-I senior leaders could visualize, a first ever common operational picture of U.S. reconstruction efforts and readily communicate improvements to civil and institutional capacity to senior leaders within USF-I, Department of State and the GoI.

This Geospatial Information and Services product is one example of visual tool portraying relevant information to enable military and civilian leaders to make informed decisions. The creation, management and distribution of geospatial data and related mapping products played a significant role during Operations Iraqi Freedom and New Dawn as geospatial information provided the foundation upon which all other operational environment information was layered to form the COP. Geospatial information management and distribution required synchronization by geospatial technicians and information managers across multiple echelons.

The following four information management best practices implemented by the USF-I J7 Directorate GI&S section provided a diverse customer base of geospatial technicians, analysts, and end users – with widely varying
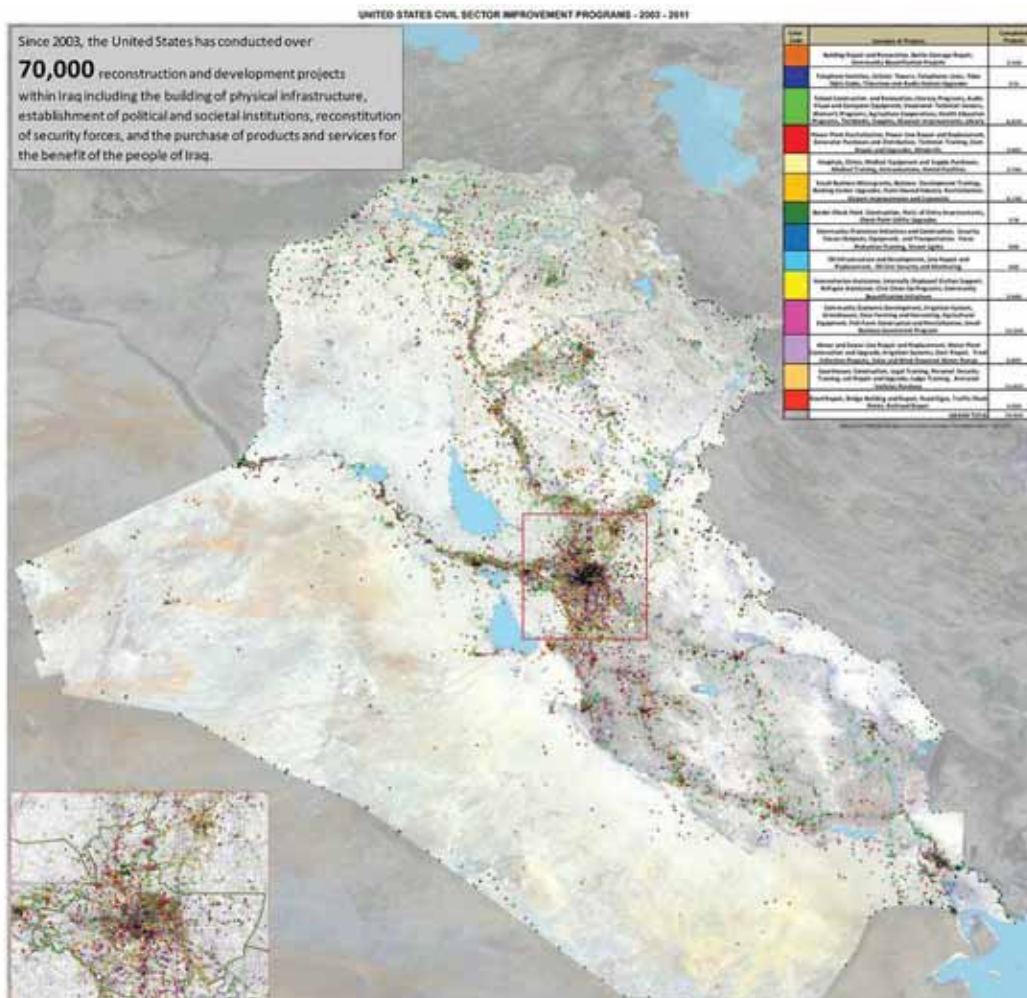

Figure 1 - U. S. Civil Sector Improvements Map depicting reconstruction projects completed in Iraq since 2003.

provided in Iraqi Joint Operations

needs and skills – with relevant, up to date geospatial information and products. Specifically, these best practices include the Iraqi Geospatial Database Portal, an online Request for Information utility, a File Transfer Protocol web page, and a review of embedded Uniform Resource Locators directly linked to new/updated files delivered by email. All GI&S sections are required to ensure subordinate units use the same mission critical data sets to maintain the same COP. To accomplish this key task, the USF-I GI&S Team used a straight forward information sharing strategy based on a pull and push technique. Data was pulled from U.S. based agencies and J-Staff directorates. Notifications were pushed to users via e-mail when data sets, vector files or other information/products were updated or published.

Although it was systematic the process was not automated. However this approach allowed customers to pull data at their own discretion. This technique also allowed users to download larger files during periods of low network traffic. This self-help approach reduced the number of RFIs to the GI&S technicians, allowing them to focus on product creation in support of operations.

The most noteworthy best practice implemented by the GI&S team was the establishment of the portal-based Iraqi Geospatial Database. IGD provided a centrally located repository and clearing house for geospatial information as directed in Joint Publication 2-03, "Geospatial Intelligence Support to Joint Operations." The USF-I (formerly Multi-National Corps – Iraq) portal established in 2008

Figure 2 - USF-I Iraq Geospatial Database Portal Homepage.

was built using a commercial-off-the-shelf editing software, based on version 4.01 HyperText Markup Language. The IGD was originally located on a stand-alone server established and maintained by the J7 GI&S Section. It is currently archived at the National Geospatial Agency (http://gil.nga.smil.mil/igd).

The IGD is organized into a home page (Figure 2) with four sub-pages organized by type of product: vector data, map products, training, and a special section containing classified information relating to specific threats not described in this article. The IGD home page contained a standard header, a hyperlink to the USF-I GI&S Section's RFI submission page, links to each subordinate division's GI&S home page, support links to LiDAR Database, an FTP Site, a coordinate converter utility,

standard Iraq map templates, route bypass categories, an urban terrain analysis, and a security classification guide. A list of links to other geospatial information sites, staff contact information, and a file upload utility to support information sharing by subordinate GI&S teams, was also included. The second page of the IGD portal, designed primarily for GI&S technicians, contained nearly 200 vector data sets (points, lines, and polygons) commonly called shape files. Vector data sets were subcategorized into 30 groups including operational and boundary data describing base perimeters, unit boundaries, the location of Iraqi Security Forces, as well as topographic information, including building locations, hydrology, industrial areas, population demographics, cultural data, location of

utilities and key infrastructure. Although much of the vector data did not change, several data sets grew in importance as U.S. bases transitioned to the GoI. In particular, data sets depicting partial base transitions consisting of incremental transfers of property to the GoI often resulted in the physical segmentation of a large U.S. base frequently redefining the external and interior perimeters (Figure 3).

As U.S. Forces transitioned bases or conducted partial transitions to the GoI, base boundary data changed and needed to be accurately recorded and shared across multiple echelons in a timely manner. The map depicted in Figure 4 illustrates the three phase transition of Contingency Operation Site Garry Owen to the Government of Iraq. Phase one, highlighted in the blue area of the map, required the transition of a small portion of the base to include buildings and life support facilities

necessary to house ISF. The Phase two partial transition, identified by amber shading, expanded the ISF footprint and supported a larger number of ISF personnel to occupy the base, perform security operations, conduct inventories, and accept the remaining areas and facilities from U.S. Forces. Phase three incorporated transfer of the remaining areas within the yellow external base perimeter boundary line to the GoI. Identification of U.S. personnel were tied to boundary identification as well as U.S.
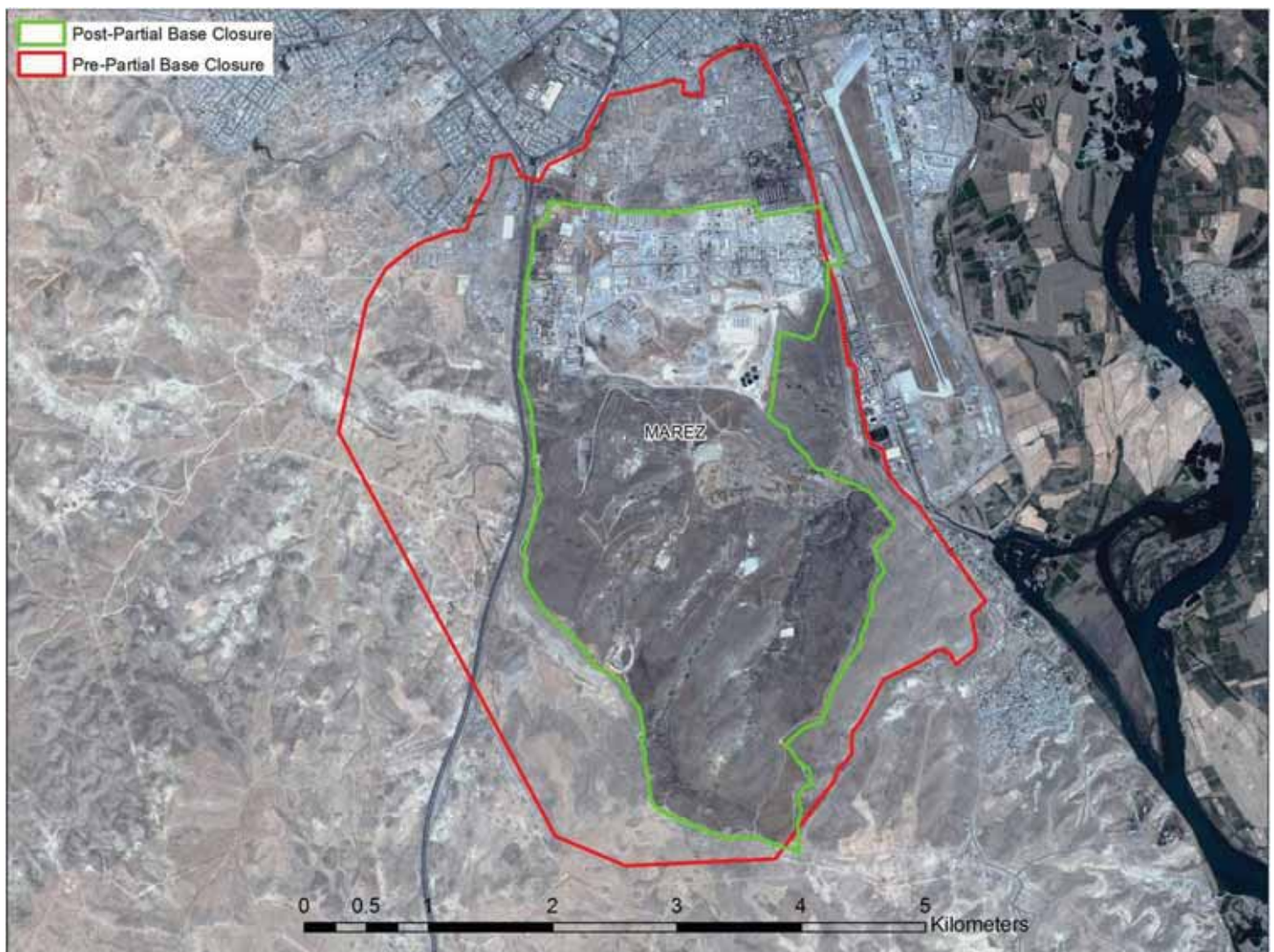

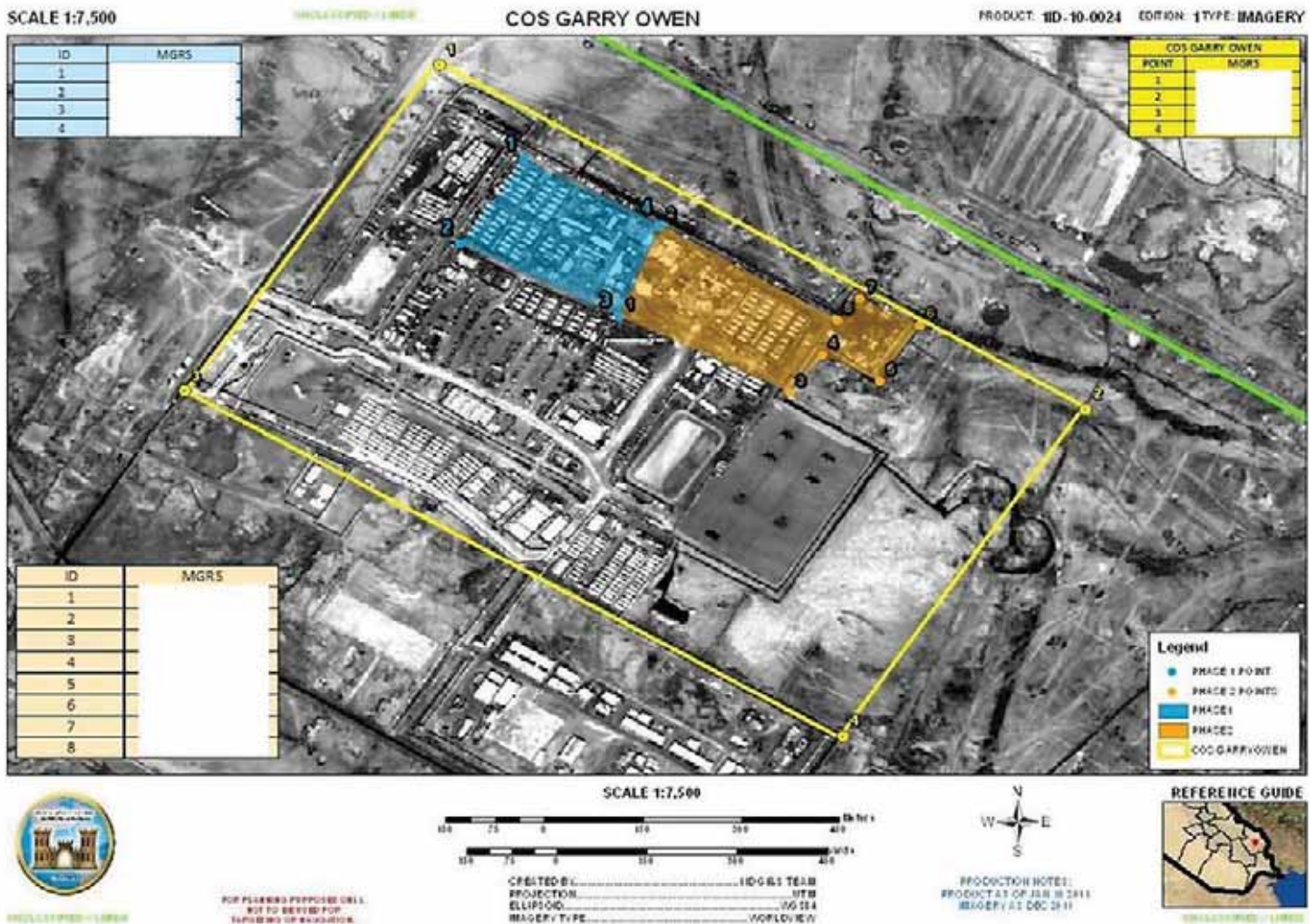**Figure 3 – Vector file depicting the partial transition of COS Marez.**

Figure 4 - COS Garry Owen phased transition site map.

funded contracts including Logistics Civil Augmentation Program for basic life support services or facility repairs. The third page of the IGD contained categorized, ready to print AdobeTM portable document format, small file size (3-5megabytes), medium resolution maps. The site supported quick search and download by the end user for printing on a locally connected plotter. Available map categories included routes; division, brigade and battalion boundaries; and numerous products depicting topography, population, and religious and tribal demographics.

Another best practice implemented was the RFI Tracker (Figure 5) which captured user information and requests using a blend of fill in the blank and drop down menu lists. Once completed, a new numbered RFI was automatically created on a master tracker list and posted to the USF-I GI&S portal. During OND, the GI&S team responded to more than 300 formal RFIs and produced more than 1,200 individual products from requests submitted using the RFI utility. As an additional benefit, the tracker provided users with request status including the name and email address of the GI&S technician assigned to answer the RFI, allowing for quick and easy communication between the GI&S technician and the customer. Additionally, the RFI Tracker utility included management functions allowing GI&S shift supervisors to easily sort assigned tasks by status, technician or customer.

An additional best practice

implemented was the IGD FTP site which supported large file and custom file sharing to all USF-I customers. The FTP site included a public access folder for storing large files, including current imagery data sets. The FTP site also included password protected folders established for individuals, teams and delivery of limited distribution products created to support Joint Planning Team initiatives. The FTP site provided three key advantages over other file transfer methods including shared drives. First, the portal-based FTP site allowed anyone within the USF-I domain access to the information, a significant advantage over shard drives which were limited to serving local domains at the unit or base level. Administrative tools included with the portal software provided another advantage by supporting IGD administration at the GI&S Team level. Finally, the portal's administrative capabilities allowed GI&S technicians to create read only access folders which limited customers' ability to modify files on the portal thereby reducing the likelihood

Figure 5 - USF-I Geospatial Information and Services Request for Information submission.

of an unintended change to a document or file.

The final best practice distributed text based e-mail notifications with embedded URLs to share information and updates with customers. This technique provided an easy and highly reliable method to notify a large distributed audience of new information available while limiting traffic on the network and email server. For example, a text email with embedded URLs averaged 25 kilobytes compared to a typical vector file which averaged over 400kb per file. Individual map products were significantly larger, ranging between 3-5 megabytes each. The decision to use email with embedded URLs reduced GI&S related network traffic by more than 98% and didn't require special skills, network access, or permissions to implement. The creation, management, and distribution of geospatial data and related mapping products will continue to play a significant role for developing and maintaining the COP in future Joint Operations. Successful implementation of the best practices described in this article is due to the initiative, hard work and creativity of the

USF-I J7 Geospatial Information & Services Team, and the availability of portal based tools and technologies provided by the USF-I Knowledge Management Office. The complex operational environment characteristic of future unified land operations will demand continued synchronization by geospatial technicians and information managers across multiple echelons to create, manage and distribute geospatial information and related mapping products throughout the Joint Force.

MAJ Christopher Blais *served as chief of operations, U.S. Forces – Iraq J7 Directorate. MAJ Blais holds both a Bachelor's and Master's degree from Campbell University. His military education includes the Engineer Officer Basic Course, Engineer Captains Career Course, Command and General Staff College, Intermediate Level Education and the Joint Engineer Operations Course. His operational assignments include battalion intelligence officer (S2), Operation Iraqi Freedom III (2005), company commander, Operation Iraqi Freedom IV (2006) and USF-I J7chief of operations, Operation New*

Dawn (2011).

CW2 Joshua Stratton *served as chief of Geospatial Information and Services, U. S. Forces – Iraq J7 Directorate. CW2 Stratton is a graduate of the Warrant Officer Basic Course and the Basic and Advanced Terrain Analysis Courses. His operational assignments include Operation Enduring Spring (2002), Operation Iraqi Freedom I (2003), Operation Enduring Freedom II (2007), Operation Iraqi Freedom V (2007-2008, and Operation New Dawn (2011).*

MSG Moise Danjoint *is the noncommissioned officer in charge, Geospatial Information and Services, U. S. Forcess – Iraq, J7 Directorate. MSG Danjoint completed Cartographer and Geospatial Engineer Advanced Individual Training courses. He is a graduate of the Basic and Advanced Noncommissioned Officer courses, Drill Sergeant's Course and the First Sergeant's Course. His operational assignments include Operation Restore Democracy (1994), Kosovo (2001, 2002), Operation Iraqi Freedom (2004) and Operation New Dawn (2011).*

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ACRONYM QuickScan

OIF - Operation Iraqi Freedom
OND - Operation New Dawn
LTG - Lieutenant General
USF-I - United States Forces, Iraq
DCG-O - Deputy Commanding General for Operations
KLE - Key Leader Engagement
GoI - Government of Iraq
COP - Common Operational Picture
GI&S - Geospatial Information and Services
OE - Operational Environment
IGD - Iraqi Geospatial Database
RFI - Request for Information

FTP - File Transfer Protocol
COTS - Commercial-off-the-Shelf
HTML - HyperText Markup Language
NGA - National Geospatial Agency
LiDAR - Light Detection and Ranging
ISF - Iraqi Security Forces
COS - Contingency Operating Site
LOGCAP - Logistics Civil Augmentation Program
PDF - Portable Document Format
LIMDIS - Limited Distribution
JPT - Joint Planning Team
URL - Uniform Resource Locator
KB - Kilobytes

PM in-transit visibility tools support National Guard missions

By Stephen Larsen

In the largest and swiftest response to a domestic disaster in history, the National Guard deployed more than 50,000 troops to the Gulf States to support relief efforts following Hurricane Katrina in 2005.

However, tracking assets proved to be problematic, at best. Support personnel had no answer to questions like: How much food, water and other supplies were available? Where were those items? And how long would it take to get those items to where they were needed?

"One of the lessons-learned that came out of Hurricane Katrina was that we knew we needed increased capabilities to track assets," said MAJ Ron Robbins, logistics staff officer with the Army National Guard Readiness Center, Arlington, Va. "We needed tools to track assets when we're assisting civil authorities in responding to natural disasters and national emergencies, and we needed a tool to share this information across agencies for a common operating picture."

Such tools that provide in-transit visibility are now available from the Product Manager, Joint-Automatic Identification Technology, part of the of the Army's Program Executive Office, Enterprise Information Systems' Project Manager, Defense Communications and Army Transmission Systems. "Radio Frequency Identification products allow logisticians to track shipments from the factory – or fort – to the foxhole," said LTC Cary Ferguson, J-AIT the product manager, whose organization has established and maintains a suite of indefinite delivery/indefinite quantity contracts through which DoD organizations can acquire AIT products and support including RFID. "RFID products provide 'in the box' visibility – the ability to see the contents of containers or pallets without opening them. These products afford visibility of a unit's en-route deployment status and facilitate inventory control and redistribution of assets."

PM J-AIT teamed with the National Guard Bureau to conduct a training course at the National Guard Combined Support Maintenance Shop in Manchester, N.J. from Sep. 27 to Sep. 29, 2011, to teach National Guard Soldiers from Connecticut, Maine, New Jersey and New York how to conduct site surveys to deploy radio frequency identification systems that provide in-transit visibility. RFID systems consist of three basic components: RFID tags that are electronically programmed with unique identification information; interrogators that emit and receive radio signals from tags; and computers that process digital information from tags and interrogators. During the training course, Tom Kaberline and Tommy McCullough of the NGB taught the Soldiers how to conduct site surveys and to deploy interrogators, Albert Losten of the NGB taught them how to

Photo by Stephen Larsen

WO1 Dan Dubay *(left)* **takes notes and SFC Trevor Brown looks on as Thomas Kaberline** *(right)* **of the National Guard Bureau explains how the signpost he's holding can track active radio frequency identification tags on passing vehicles. This took place during a training class at the National Guard Combined Support Maintenance Shop in Manchester, N.J. on 29 Sept. 2011.**

write to RFID tags and Andy Smith of PM J-AIT showed them how to use the RF-ITV Tracking Portal.

Visual common operating picture via RF-ITV Tracking Portal

"The RF-ITV Tracking Portal traces the identity, status and location of cargo from its point of origin to its destination, via the DoD's worldwide Active RFID Network, which is the largest active RFID network in the world, located in more than 50 countries and including more than 3,600 worldwide read and write sites," said Smith. He added that the RF-ITV Tracking Portal also receives near real-time position information from more than 12,000 satellite-based system (such as the Movement Tracking System) modules, combines and processes the information, and delivers it to systems such as the Battle Command Sustainment and Support System, the Standard Army Retail Supply System and the Transportation Coordinators' - Automated Information for Movements System II.

Smith demonstrated to the Soldiers in the class the RF-ITV Tracking Portal's Google Earth mapping capability, which enables users to see exactly where interrogators, shipments and conveyances were located anywhere in the world.

"This is standard, commercial Google Earth with RF-ITV data overlaid," said Smith, adding that PEO EIS has obtained authority to operate and a certificate of networthiness for this application, allowing any DoD user to request and obtain the Google Earth download on their computer from their network enterprise center.

"This is a great tool for logistics in-transit visibility

Photos by Stephen Larsen

Left photo: **Tommy McCullough** *(left, in maroon shirt)* **of the National Guard Bureau Warrant shows National Guard Soldiers how to erect a mast-mounted radio frequency identification interrogator outside the National Guard Combined Support Maintenance Shop in Manchester, N.J. on Sep. 29, 2011.**
Right photo: Staff Sgt. David Arroyo of the Joint Force Headquarters-New York steadies the mast-mounted radio frequency identification interrogator.

and asset visibility, an additional tool above-and-beyond the IT components currently in the field, such as BCS3," said Robbins. "We can use the RF-ITV Tracking Portal from any Common Access Card-enabled PC – and in the future, we will be able to share this visual tool across agencies – such as Federal Emergency Management Agency, the Department of Homeland Security, DoD and the Red Cross – for a common operating picture."

SSG David Arroyo of the Joint Force Headquarters-New York, who provided logistics support out of the emergency operations center at JFHQ-Latham NY after the 9-11 attacks, said the AIT tools the class was being trained with would have "helped tremendously " in that relief effort.

"It would have been extremely helpful to be able to watch on the computer screen

of the RF-ITV Tracking Portal and see exactly where supplies were," said SSG Arroyo. "Is this inbound? Where is it? The good thing about this is that you can annotate on the tag information about exactly what's in the truck –Meals Ready to Eat, water, cots or whatever."

MAJ Robbins said the National Guard Bureau has these AIT products at their headquarters and has implemented AIT pilot programs in five states – Washington, Oregon, Idaho, Montana and Alaska.

"We also have a training package that we take to units to regionally train – neighboring states collaborate, so we do training that way," said MAJ Robbins. "PM J-AIT has been a really big help in supporting us as we roll this out. It's a living, breathing program – it's evolving on the fly and we're learning new things all the time."

Network Integration Evaluation

A new day has dawned in Army procurement and fielding. The Network Integration Evaluation process is focused on getting the most effective communications tools and technology into the hands of Soldiers. Integrating the satellite terminals, radios, waveforms, mission command software and other systems that make up the network begins in laboratories at Aberdeen Proving Ground, Maryland, and in the field at White Sands Missile Range, New Mexico. The time from concept to system on the ground is shrinking and best of all, integrated systems are tested and evaluated in this rigorous process before they are fielded.

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Integrated systems are on the way to the field after rigorous evaluations and testing that look at every angle.

New approach will deliver integrated

By Claire Schwerin

The Army's next major network field exercise will take place in May and June, with a goal of finalizing its first integrated "capability set" of network equipment that will be fielded to Army brigade combat teams starting in Fiscal Year 2013.

Capability Set 13 is composed of vehicles, network components and associated equipment and software that, for the first time, will deliver an integrated voice and data capability throughout the brigade combat team formation down to the tactical edge. This robust tactical communications network will empower dismounted Soldiers, speed commanders' decision-making and support mission command on-the-move.

The connectivity, architecture and components of Capability Set 13 will be validated during the Network Integration Evaluation12.2, the third in a series of semi-annual field exercises designed to quickly integrate and mature the Army's tactical communications network. The events are held in the challenging terrain of White Sands Missile Range, N.M., and Fort Bliss, Texas, and involve 3,800 Soldiers of the 2nd Brigade, 1st Armored Division executing realistic operational scenarios. The brigade evaluates dozens of technologies from government and industry to determine whether they perform as needed, conform to the network architecture and are interoperable with existing systems.

The NIEs are led by a Triad consisting of the Brigade Modernization Command, Army Test and Evaluation Command and System of Systems Integration Directorate under ASA(ALT). The Triad assesses capabilities and determines their implications across doctrine,

A 2nd Brigade, 1st Armored Division Soldier demonstrates Warfighter Information Network-Tactical Increment 2 and mission command on the move applications during the Network Integration Evaluation 12.1. WIN-T 2 is a major upgrade to the tactical network backbone that will extend satellite communicaitons to the company level allowing Soldiers to communicate seamlessly through voice date, images and video even in complex terrain that can break line-of-sight radio connections. Hosted on a single computing system, the initial set of Mission Command on the move applications will provide mobile company Soldiers with the real-time information that typically would only be available inside a Tactical Operations Center.

organization, training, materiel, leadership, personnel and facilities.

By placing technology in Soldiers' hands "early and often," the NIEs have already driven decisions to send certain systems to the field, revamp others to better meet Soldier needs and terminate several programs that lacked merit. The NIE process has also aligned several key Army programs of record to form an Integrated Network Baseline, including Warfighter Information Network-Tactical, the Joint Capabilities Release for Force XXI Battle Command Brigade and Below, Joint Tactical Radio System Handheld, Manpack, Small Form Fit, and the JTRS Soldier Radio Waveform and Wideband Net-

working Waveform.

Integrating the satellite terminals, radios, waveforms, mission command software and other systems that make up the network in laboratories at Aberdeen Proving Ground, Md., and in the field at White Sands also reduces the burden on Soldiers downrange, said COL (P) Dan Hughes, director of the Army's System of Systems Integration Directorate.

"We're not doing what we used to call 'drive-by fieldings.' We are not taking something to the field anymore unless it comes through here," COL Hughes said. "We run it through the lab. We test it out here. We put it in Soldiers' hands. We get an evaluation and

tactical communications network

we move on from there. What we're trying to get to is a baseline architecture that we can put everywhere in the Army."

The NIE approach represents a fundamental change in the way Army procurement specialists develop, evaluate, test and deliver networked capability to operating forces. Until now, Army leaders have developed, funded and fielded network technologies on individual program schedules.

Going forward, Army leaders will shift from traditional acquisition strategies by utilizing the Agile Process, which rapidly incorporates technological advances from industry and continuously delivers the latest critical capabilities to Soldiers in line with the Army Force Generation cycle.

The new construct also includes Capability Set Management, an adaptive process that synchronizes network development and fielding with the Program Objective Memorandum cycle, thereby ensuring that the right amount of funding is in place at the right time for all components of the capability set.

Synchronized fielding of capability sets every two years will assure the right amount and type of gear are purchased for the brigades that need it first, then incrementally modernize it -- instead of spending resources on technology that may be out of date by the time it is needed.

"Fielding the same radio year after year would be like putting the original iPhone in the force five years from now," COL Hughes said. "Instead [we are] buying the latest technology and putting it out there. The more we can use and leverage commercial technology the better off we're going to be."

However, the aim of the NIEs goes beyond just "buying widgets," said COL (P) John Morrison,

director of the Army G-3/5/7 LandWarNet-Battle Command Directorate. Army leaders are considering a systems' technical merit and the impacts on doctrine, training, requirements, force structure and other key areas.

"This is a completely different way of doing business," COL Morrison said. "When we hand the capability over to a brigade that's in the ARFORGEN process, we also give them the TTPs [tactics, techniques and procedures] that go along with it."

Aside from forcing positive changes to the Army's business practices, the NIEs have yielded numerous integration "firsts" and innovative risk reduction prior to formal operational tests. The Army has effectively reduced risk for the NIE 12.2 Initial Operational Test and Evaluation for WIN-T Increment 2 and the JTRS HMS systems by integrating them into the NIE architecture and obtaining initial Soldier feedback prior to their formal tests.

Capability observations during NIE 12.1 revealed that the use of a networked aerial tier with line of sight systems vastly improved mission command on-the-move and simplified connectivity to remote company outposts by removing the need for vulnerable ground retransmission locations. Dismounted position location information was integrated into the common operating picture and mission command capabilities were extended to the tactical edge. Army planners brought together dozens of different network management tools that are currently fielded, and made progress toward integrating and streamlining NETOPS capabilities into common standards.

Additionally, Nett Warrior handheld devices down to the fire team leader level and above have demonstrated tremendous poten-

tial for dismounted operations, especially for transmitting position location information and SPOT reports. Through the NIE process, Army leaders have aligned various efforts aimed at harnessing smartphone technology for tactical use, resulting in a single handheld solution that will be fielded in the Army in Fiscal Year 2013 and continuously upgraded with new "apps."

Extending the network to the lowest echelons will facilitate decisive action at the company level, said CPT Luis Albino, commander of C Troop within 1st Squadron, 1st Cavalry Regiment in 2/1 AD. A dismounted Soldier who spots an objective can immediately relay information through voice, text and photos, significantly improving the company commander's situational awareness, CPT Albino said.

"I'm far from the scout that is actually seeing the objective, but if I can see what he's seeing, I can quickly make a decision. And my [higher chain] will be able to get that same picture," CPT Albino said. "I'm not wasting time waiting for somebody outside my chain to give me a 'Hey, this is what he's looking at.' – I can now make a decision because I can know exactly what he's looking at."

NIE 12.2 will operate in a classified environment with secure data connections and will connect evaluation units to a higher-division headquarters, being represented by the 101st Airborne Division operating out of Fort Campbell, Ky. 2/1 AD operations at White Sands will require the brigade, battalion and company command posts to "jump" or move in uncooperative and unpredictable environments, and quickly establish network connectivity. A

battalion-sized opposition force will be employed in dynamic scenarios with hybrid threats, including conventional forces, insurgents and members of the local population.

"What you're going to find in 12.2 is we're going to be more fluid," with operations covering at least two-thirds of the 12,000 square kilometers of White Sands, said BG Randal Dragon, commanding general of the Brigade Modernization Command. "You're going to see an increase in capability in the NIE."

The dominant event of NIE 12.2 is the IOT&E for WIN-T Increment 2, a major upgrade to the tactical communications backbone that will extend satellite communications to the company level and enable mission command on-the-move.

"Increment 2 is the baseline. It's the foundation for the Army's tactical network of the future, which provides a fully mobile network that we've never had before," said COL Ed Swanson, WIN-T project manager. "The IOT&E is critical because we have to show Increment 2 is operationally effective, suitable and survivable to support a full rate production decision to field Increment 2 to the entire Army."

NIE 12.2 will finalize Capability Set 13 and the Integrated Network Baseline, the foundation upon which Army leaders will set future requirements and evaluate emerging technology. NIE 13.1, scheduled for the fall of 2012, will be the final exercise prior to the synchronized fielding of Capability Set 13. While Army leaders plan to provide up to eight brigade combat teams with the full suite of networked systems, every unit in ARFORGEN will receive "minimum essential" network capabilities including a modernized tactical operations center and a basic mission command on-the-move capability, COL Morrison said.

"We're buying what we need, for those operational formations that need it, when they need it," he said. "This really is about buying less, more often and modernizing that Integrated Network Baseline over time."

Claire Schwerin *is a staff writer for Symbolic Systems, Inc. supporting the U.S. Army Program Executive Office Command, Control and Communications-Tactical (PEO C3T) and the Assistant Secretary of the Army for Acquisition, Logistics and Technology (ASA(ALT)) System of Systems Integration Directorate. She is a former Statehouse reporter for The Star-Ledger, New Jersey's largest newspaper. She has covered the Army's first two Network Integration Evaluations and several related Network Modernization events.*

> The Brigade Modernization Command conducts physical integration and evaluations of the network, capability packages and other adaptive and core capabilities in order to provide doctrine, organization, training, materiel, leadership and education, personnel and facilities recommendations to the Army.

Acronym QuickScan

2/1 AD -- 2nd Brigade, 1st Armored Division
ARFORGEN -- Army Force Generation
ASA(ALT) -- Assistant Secretary of the Army for Acquisition, Logistics, and Technology
DOTMLPF -- Doctrine, Organization, Training, Materiel, Leadership, Personnel and Facilities

FBCB2 -- Force XXI Battle Command Brigade and Below
HMS -- Handheld, Manpack, Small
IOT&E -- Initial Operational Test and Evaluation
JCR -- Joint Capabilities Release
JTRS -- Joint Tactical Radio System

NETOPS – Network Operations
NIE -- Network Integration Evaluation
SPOT -- Synchronized Pre-deployment and Operational Tracker
WIN-T -- Warfighter Information Network-Tactical

Phases of the Agile Process

U.S. ARMY

Phase 0—Define Near Term Requirements

A TRADOC-led effort to identify capability gaps and opportunities for evaluation in the NIE. Those gaps are validated and prioritized by HQDA G3/5/7 based on operational need and the Army Network Strategy.

Phase I—Solicit Potential Solutions

Led by ASA (ALT), this phase initiates a solicitation to both Industry and the Government materiel community for potential solutions. For consideration in Phase I, systems must support a capability gap or opportunity established in Phase 0 and provide supporting information to ASA (ALT) concerning its technical maturity, concept of operations, ability and cost to integrate with the network and ability to provide the required quantity of systems and support for the NIE. Formal Program of Record systems requiring formal tests go through the Test Schedule and Schedule and Review Committee (TSARC) process and are incorporated into the most relevant NIE.

Phase II—Conduct Candidate Assessments

Led by ASA (ALT), this phase determines the viability of candidates for participation in the Network Integration Evaluation. Participation in Phase II requires a favorable assessment in Phase I and respective decision point (DP1) for inclusion on the initial list of viable candidates. At this phase, systems undergo a more thorough review in a laboratory environment to confirm technical maturity evaluated and the system level of integration; and a network architecture analysis to determine whether or not the candidate is a viable addition to the NIE architecture. Based upon these results and HQDA Objectives and Priorities for the relevant NIE, Decision Point two (DP2) selects the candidates to participate in the NIE.

Phase III—Evaluation Preparation

This phase, led by the Brigade Modernization Command (BMC) and ASA(ALT), focuses on preparing for the Network Integration Rehearsal (NIR) and NIE. Some specified criteria for this phase includes that systems have an assigned PM and Combat Developer, funding, draft requirements, initial test plans, initial safety assessments, training plan, a technology maturity and readiness level assessment, a draft evaluation concept, as well as an IA and spectrum assessment. Final outcome is a defined unit architecture, systems delivered and integrated, Soldiers trained, and systems instrumented prepared for Phase IV. *Candidates are required to provide onsite support during this phase of the Agile Process.*

Phase IV—Network Integration Rehearsal (NIR)

Led by ASA (ALT) and supported by ATEC and BMC, the NIR is a risk-reduction event in preparation for the NIE. The primary activity in this phase is the overall integration of systems, not only physically within unit platforms but also within the network and the NIE vehicle integration fleet. This phase is complete after the successful execution of the LOADEX, Pilot Test, and COMMEX. *Candidates are required to provide onsite support during this phase of the Agile Process.*

Phase V—Network Integration Evaluation (NIE)

Led by BMC, with ATEC holding primary responsibility for Type I systems (formal program of record testing), the NIE evaluates candidate systems in an operational environment. The NIE seeks Soldier recommendations on system/concept continuation and DOTMLPF changes required to integrate systems/concepts into units and operations. The NIE completes identified PoR testing during the first portion of the NIE and it ends with a two-week integration assessment event and a DOTMLPF review providing system recommendations. *Candidates are required to provide onsite support during this phase of the Agile Process.*

Phase VI—Develop a Network Implementation Plan

Phase VI is led by the HQDA ARSTAF. ASA(ALT), TRADOC, ARSTAF collectively provide a recommendation to procure and integrate NIE demonstrated capabilities based on system maturity, current architecture and integrated network baseline, valid requirements, and available resourcing. In this phase, the HQDA ARSTAF makes integrated capabilities fielding recommendations and/or DOTMLPF change recommendations to continue to develop capabilities based on TRADOC's NIE findings for each candidate.

Modernization commander offers NIE perspectives

By Claire Schwerin

BG Randal Dragon
Commanding General
Brigade Modernization Command

Please describe the unique role and structure of the 2nd Brigade, 1st Armored Division as an operational Brigade Combat Team that has been dedicated to the Army's Network Integration Evaluation effort.

The 2nd Brigade, 1st Armored Division is a Heavy Brigade Combat Team that is organized with a standard MTOE [modification table of organization and equipment] complement of personnel and equipment. They've restructured it to have all the capabilities that the current force has in it – so it has tanks and Bradleys, heavy artillery, Strykers, MRAPs and light artillery – and a full complement of the associated support equipment that goes with that. They have a full complement of network theater-provided equipment, which allows us then to look at standard MTOE, legacy equipment, theater-provided equipment, on top of the programs of record that are coming up on decisions, or emerging technologies that show promise or fill one of our gaps.

Army strategists attached the brigade to the Brigade Modernization Command for the purpose of conducting Network Integration Evaluations twice a year. So essentially the brigade has allowed us to change the way we evaluate systems. We used to perform tests and/or evaluations in a sterile environment. Now, we integrate those systems so we can take a look at the entire network in one operational environment with a full Brigade Combat Team.

How will the fielding of integrated network "capability sets" lessen the burden on deployed Soldiers and improve training packages for this type of gear?

Many units deployed to Iraq and Afghanistan over the last 10 years experienced the pain of what Soldiers call a drive-by fielding. Drive-by fielding was done with the best of intentions – to provide the latest capabilities to deployed units most in need of them. But it created significant challenges for units as well. Often there was not enough training before deployment. Units learned to use capabilities while conducting combat operations. There was also a lack of up-front integration to ensure different systems could communicate, or in some cases, even operate at the same time.

Now we get a chance to integrate those systems into the overall network capability before they go out to the field. In the past, we also fielded based on a specific type of organization, such as Infantry or Stryker. And now as you look at the larger Army and we're trying to field a system that's compatible across the force, we have to take into account size, weight, power and cooling considerations that are different for each one of those types of formations. So I think it enables us now to become a little bit more proactive.

It also takes a certain type of training to understand how to get the benefit out of an integrated system. You still have to understand the individual pieces and parts of it. So now even though we train the Soldiers on an individual system, what we see in the evaluation is the integrated capability--the integrated training challenge, the integrated benefit that we get as opposed to the stand-alone systems. If we were now to take a step back and evaluate systems by themselves, we may achieve different results, for anything from handheld radios to a mission command system. From a training perspective I think it will help guide the force, will help provide the specific task editions and standards that need to be developed, formalize those and get those into Soldiers' hands.

There's also the question about how Soldiers learn today. Instead of a technique that may have worked 20 years ago, we may need a different type of technique today. We're looking at how to best formulate the training so Soldiers can take an intuitive system and put it into motion quickly and know how to get the most out of that particular system.

How has the change in requirements definition helped to guide the NIEs and new Agile Process approach to acquisition?

Requirements definition changes have helped in multiple ways, starting with early definition of capability gaps and having Soldiers in the loop for feedback early and often. We respect the standard acquisition process and we still think there is a need for that, but for network-related capabilities we believe that the Agile Process may provide us a path to at least start to catch up with industry. Right now we would estimate that we're probably somewhere between eight and 10 years behind, based on current industry standards for network-related capabilities. So TRADOC develops the capability gaps, provides those to the ASA(ALT) System

of Systems Integration Directorate, which then issues an announcement that goes out to industry and asks them what capabilities they may have that fulfill the specific gaps that we have. Then we determine, based on the nominations that come back in, what specific systems we will bring in to a Network Integration Evaluation. Those are the early phases of the Agile Process lifecycle. Past that, once we've decided what systems are coming in, we train the Soldiers, field the equipment, put them in a tactical environment, seek out their feedback, evaluate that feedback and provide it back into the Army so they can identify the most promising systems that are ready to go now.

Once we get into Phase 6 of the Agile Process, then it's back to the Army staff and ASA(ALT)'s hands as to what systems they want to buy now, what they want further development on – which may come back into a subsequent NIE – and what systems simply don't show promise at this point in time, and need a major reworking before we put them back in Soldiers' hands.

This is a fundamental and positive change in the way we do business. It gets Soldiers in the loop. It's based on known gaps that we have. It involves all aspects of the TRADOC, the ASA(ALT) community and the Army Test and Evaluation Command community.

What has been one of the biggest lessons learned due to Soldier feedback from the NIE and how has the Army taken that feedback and acted on it?

I think the biggest lesson learned had to do with the Nett Warrior program. Army researchers had developed a Soldier-worn mission command system over a number of years, and when it was brought out to the NIE 11.2, we realized that it was not in the right shape, weight, or sustainability to meet Soldiers' needs. We reshaped it between 11.2 and 12.1 and brought back a commercial solution that addresses the same gap but does it on a more cost-effective basis, while lowering the weight and power requirements. That particular program saved the Army more than $800 million based on reshaping.

Every Soldier has a different perspective, and so we appreciate all feedback. With both the 2/1 AD users and with our industry partners, we need to make sure they know what they're doing is important to the Army. All of us are focused on the same thing, and that is getting the right capability into Soldiers' hands at the right time, at the right maturity level so that it improves their mission effectiveness.

How will NIE 12.2 differ from previous exercises (scenarios, test footprint, etc.) and why is this significant?

It will be a classified exercise, and will have a higher command, which will be the 101st Airborne Division. They'll be operating out of Fort Campbell, Ky., and they will actually control the operations of the 2nd Brigade in the box over the network – over Warfighter Information Network-Tactical Increment 2. We've gone from what I would consider the static environment that we had at the first two exercises, which was more Forward Operating Base-focused, to an above-ground, hybrid threat, controlled free play environment. It's a non-cooperative OPFOR [opposing force], and it's really not just about the opposing force, but also the operating environment. You've got a criminal element, a host nation security force, governmental officials, a mounted threat that may be working out of a sanctuary, an indirect fire threat, and conventional obstacles such as mines and other things that block the roads.

The 2/1 AD is going to have tanks and Bradleys out fighting as part of this force. The Tactical Operations Centers are going to have to jump and re-establish network connectivity. In the past we haven't had to jump. We've moved them into the box and set them up. So you'll see a very mobile exercise. You'll find a much more fluid environment.

As for the test footprint, by the time that we're done with the evaluation, we expect to extend all the way to the northern reach of White Sands for at least one battalion TOC and the associated number of companies. You'll see it extend quite a bit, almost to where we were for 11.2, maybe a little bit further. For 12.1 we kept it close, because of the maturity of the network and the challenges we had with integration. This one, based on the work that's being done at Aberdeen Proving Ground, Md., and the teamwork between ATEC, ASA(ALT), and BMC, I think we'll find ourselves being able to project combat power all the way to the north part of White Sands.

ACRONYM QuickScan

2/1 AD - 2nd Brigade, 1st Armored Division
ASA(ALT) - Assistant Secretary of the Army for Acquisition, Logistics, and Technology
ATEC - Army Test and Evaluation Command
BMC - Brigade Modernization Command
MRAPs - Mine Resistant Ambush Protected vehicles
MTOE - Modification Table of Organization and Equipment
NIE - Network Integration Evaluation
OPFOR - Opposing force
SoSI – System of Systems Integration (directorate under ASA(ALT))
TOC - Tactical Operations Center
TPE - Theater-provided equipment
TRADOC – U. S. Army Training and Doctrine Command
WIN-T -- Warfighter Information Network-Tactical

Network upgrades ready for test

By Amy Walker

The second generation of the Army's tactical communications network backbone --Warfighter Information Network-Tactical, is being prepared to provide on-the-move communications deeper into the maneuver formation and to the edge of the battlefield.

"Infantry and armor battalions and companies are maneuver units that require mobility, so their ability to communicate on-the-move is critical," said LTC Robert Collins, WIN-T Increments 2 and 3 product manager. "And not only does WIN-T Increment 2 provide that needed on-the-move capability, its increased bandwidth enables the company commander to take advantage of existing [mission command] collaboration tools previously only available at battalion and above. It's going to

bring a lot to the fight."

The three-week WIN-T Increment 2 Initial Operational Test and Evaluation is scheduled for May at White Sands Missile Range, N.M., in conjunction with the Network Integration Evaluation 12.2. The IOT&E is the Army's record test to fully assess the suitability, survivability and effectiveness of the WIN-T Increment 2 equipment with an operational unit. It will provide Army leaders valuable feedback to make any needed doctrinal, material or training improvements. The analysis and test results from the IOT&E will be used in the Full Rate Production Decision scheduled for the fourth quarter of fiscal year 2012, which will then allow for the fielding of WIN-T Increment 2 to maneuver units across the force.

"WIN-T Increment 2 will

bring about some revolutionary changes – the network will now be able to completely support the commander's intent and operations," said COL Edward Swanson, WIN-T project manager, who is assigned to the Program Executive Office for Command, Control and Communications-Tactical. "Commanders will no longer have to stop to establish [mission control] and to regain situational awareness. They can truly fight on-the-move and the network will be able to support that. In effect, the network becomes a weapon system."

The construct for the IOT&E will create a robust, full-scale division and brigade network for testing. The 2nd Brigade, 1st Armored Division at WSMR will serve as the maneuver element, while the 101st Airborne Division at Fort Campbell, Ky. will serve as the division headquarters element. Another component of the IOT&E, the 1st Sustainment Brigade in Fort Riley, Kan., will utilize Increment 1b (an upgraded version of Increment 1), and connect into the Increment 2 network to demonstrate and test the interoperability between the current and next-generation network. All three units will reach back to the Network Services Center – Training at Fort Gordon, Ga., which will simulate the Regional Hub Node function in the network. There are five RHNs globally that use baseband and satellite communications capabilities to enable reach-back to the Army's network.

WIN-T Increment 2 is a major upgrade to the tactical communications backbone and a critical piece of Capability Set 13 -- the first integrated group of network technologies out of the NIE process that will be fielded to up to eight brigade combat teams

(U.S. Army photo by Amy Walker)

In preparation for the Warfighter Information Network-Tactical Increment 2 Initial Operational Test and Evaluation scheduled for May 2012, Soldiers trained on-the-move during the WIN-T Increment 2 New Equipment Training at Fort Bliss, Texas on 13 March 2012. The convoys included WIN-T Increment 2 Soldier Network Extensions, or SNEs, as shown here.

starting in fiscal year 2013. WIN-T Increment 2 was integrated at NIE 12.1 which wrapped up in November 2011 for risk reduction and to provide user feedback six months ahead of its formal operational test.

"WIN-T Increment 2 will enhance the overall combat effectiveness of brigade combat teams and allow them to operate in highly geographically dispersed areas," LTC Collins said. "It will also improve the speed of their decision-making cycles and improve their ability to receive, analyze and distribute information."

From a baseline perspective, WIN-T Increment 1 has provided the network backbone for the past two NIEs, and both Increments 1 and 2 will support each NIE in the future. WIN-T Increment 1 provides Soldiers with high-speed, high-capacity voice, data and video communications to units at battalion level and above, with Soldiers having only to pull over to the side of the road to communicate. With the WIN-T Increment 1b upgrade, both increments are fully interoperable and can operate within the same mesh on the battlefield.

Aiding in the interoperability of the different increments and network components of WIN-T is the Communications Systems Design Center, at Aberdeen Proving Ground, Md. The facility contains both WIN-T Increment 1 and Increment 2 technology to test operational requirements and interoperability within the network. Currently, it is conducting integration and pre-testing for WIN-T Increment 1 and Increment 2 interoperability for the upcoming IOT&E.

As part of the development to increase interoperability between the increments, the WIN-T Increment 1b upgrade along with Increment 2 will possess the same Network Operations tools to facilitate the administrations,

Soldiers train on-the-move in Point of Presence vehicles *(front)* in Fort Bliss, Texas, on 13 March 2012 as part of the 10-week Warfighter Information Network-Tactical Increment 2 New Equipment Training that began January. The training prepares Soldiers to take part in the WIN-T Increment 2 Initial Operational Test and Evaluation scheduled for May 2012. In the background, Soldiers train on a WIN-T Increment 2 Tactical Communications Node.

management and response of the network. Increment 2 will add a set of planning and monitoring tools that will be incorporated into 1b in 2014. Both increments will also possess a "colorless core" security enclave, enabling commanders to conduct mission command warfighting functions throughout their units without fear of the enemy intercepting sensitive information.

WIN-T Increment 2 also introduces additional capabilities including the Soldier Network Extension, which extends the network from the brigade down to the company level for the first time. Using its on-the-move satellite communication systems, the SNE will be used to heal and extend lower echelon tactical radio networks for geographically separated elements blocked by terrain features.

"Traditionally at the lower echelon levels, you have line-of-sight communication with the tactical radios," said CPT Jose Haro, a company commander within 2/1 AD, the unit testing tactical communications systems as part of the NIEs. "If you have to communicate with somebody in a mountainous terrain area like Afghanistan, then that limits you if you're using just line-of-sight communication radios. So [with WIN-T Increment 2] at the lower echelon level, I'm able to effectively communicate by satellite."

The SNE also allows the company level to connect into the WIN-T backbone and provides them with "bigger pipes" for more capacity to reliably send and receive messages. When

WIN-T Increment 2 is fielded, each brigade combat team will receive 33 SNEs that will provide beyond-line-of-sight communications, which theoretically provides unlimited range, COL Swanson said.

WIN-T Increment 2 allows company commanders to utilize many of the mission command systems that they have in the Tactical Operations Center inside their vehicles while on-the-move. This increased capability will allow them to send and receive information much faster and get that critical information to platoon leaders and Soldiers on the ground via data and text, said CPT Luis Albino, another company commander with 2/1 AD. "WIN-T Increment 2 provides that Soldier on the edge needed situational awareness," CPT Albino said. "He now knows what is happening to the sister unit to his right, or to his left, and what is happening along the route."

The Point Of Presence is the primary WIN-T Increment 2 configuration item to be installed on the tactical combat platforms of select personnel at division, brigade and battalion echelons. It enables mobile mission command by providing secret level on-the-move network connectivity, both line-of-sight and beyond-line-of-sight, COL Swanson said.

"In the past you had limited connectivity, which certainly restricted a commander's ability to actually be at the location on the battlefield that he needed to be to influence the battle," COL Swanson said. "With WIN-T Increment 2, the commander doesn't have to be tethered to his TOC, so he can be wherever he needs to be on the battlefield." Among the many steps required to reach the IOT&E, WIN-T Increment 2 completed its Limited User Test in 2009, which led to a successful Milestone C decision in early February 2010 and subsequent a Low Rate Initial Production contract award. This was followed by a contractor test, and the WIN-T Increment 2 Production Qualification Test-Government, which was the major developmental test leading to the IOT&E. The PQT-G, concluded on August 5, 2011, and was the largest instrumented test ever held at the Aberdeen Test Center, Aberdeen Proving Ground, Md. This test was completed utilizing WIN-T Increment 2 hardware and software installed in tactical vehicles spread out over four geographically dispersed sites – Aberdeen, Md.; Taunton, Mass.; Fort Gordon, Ga. and Fort Bliss, Texas. Shortly after, the program completed a Logistics Demo to review installation, troubleshooting and maintenance procedures.

A successful three-week Cold Weather Natural Environments Testing for WIN-T Increment 2 was also conducted in January at Fort Greely, Alaska. The testing included several on-the-move threads, at-the-halt deployments and storages of the communications equipment in extreme cold weather. The program has also completed interoperability testing at the Central Test Facility and Joint Interoperability Test Command. Finally, as part of a series of pre-tests for the IOT&E, Soldiers conducted 10-weeks of new equipment training beginning in January. The training was the first step in readiness for the operational test and the first opportunity to thoroughly train the Soldiers and give them all the right field tests to be able to operate and deploy the network. Following the WIN-T Increment 2 IOT&E and a Full Rate Production decision, Increment 2 will be a primary part of the Army's Capability Set 13-14 fielding. Eventually it will be fielded to 10 division headquarters and 54 brigade combat teams where the on-the-move capability is critical. Proportionally, one third of the Army's units will be fielded with Increment 2, while the other two thirds with fewer mobile requirements will remain with the Increment 1b upgrade.

"The number one modernization priority for the Army is the network, and the heart and soul of the network is WIN-T Increment 2," COL Swanson said. "It is the foundation for the Army's tactical network in the future."

Amy Walker *is a staff writer for Symbolic Systems, Inc. supporting the Army's Program Executive Office Command, Control and Communications-Tactical (PEO C3T). She graduated from The College of New Jersey, Ewing, N.J.*

ACRONYM QuickScan

2/1 AD - 2nd Brigade, 1st Armored Division
IOT&E - Initial Operational Test and Evaluation
NIE - Network Integration Evaluation
PEO C3T - Program Executive Office for Command, Control and Communications-Tactical
PdM - Product Manager

POP - Point Of Presence
SNE - Soldier Network Extension
TOC - Tactical Operations Center
WIN-T - Warfighter Information Network-Tactical
WSMR - White Sands Missile Range

Battalion communications officer relates NIE experiences

By Amy Walker

Please describe the role and responsibilities of a battalion S6 at the Network Integration Evaluation.

The traditional role of the battalion S6 is to oversee the deployment of all communications assets in a unit. They use experience and practical planning guidelines to advise the commander on how to spread assets out on the battlefield. At the NIE, the equipment is cutting edge and how it is being used is unique to every exercise. The planning guidelines aren't always clear, so it is a matter of finding out which way to utilize each item best. The NIE also requires more focus on Network Operations and integration; how to make all of the pieces fit together. Each piece is validated by the vendor, but when it comes together there are usually some challenges. At the operator level experience isn't always there, so it falls to the battalion S6 to make that difference. His or her role is to help the operator remember the training, to grow with experience, and to merge what the project managers, industry partners, and other experienced members of the military community know about that equipment, so that operators don't make the same error twice and get better every time. We are able to do that quite successfully.

How is your job changing as the Army expands the tactical communications network to deliver greater connectivity to lower echelons, such as the company and dismounted squad?

The basic principles of the S6 job remain the same. What changes is the complexity and density of equipment. We merge radio, line-of-sight, and satellite networks all the way down to a platoon and sometimes even squad level with IP-based communications, which we haven't used before at those levels. That complexity requires more systems and more efficiency in NetOps. One piece of equipment isn't a standalone piece anymore. If it functions great on its own that's good, but once it's integrated into a network it can affect a different piece of equipment completely outside the scope of that operator and unit. It can make an affect all the way up to the corps level depending on information dissemination policies. The view and understanding of how the big picture works together are not always available at every level. It takes a NetOps section. It takes several people at several levels to come together to be able to troubleshoot small issues. Before, if the

CPT Charles G. Feher, Battalion (4-27 Field Artillery Regiment) communications officer (S6) for the 2nd Brigade, 1st Armored Division (2/1 AD) works with a Warfighter Information Network-Tactical Increment 2 Tactical Communications Node on 29 February 2012 at Fort Bliss, Texas.

radio operator knew the five things needed to operate the radio, he was good. Now, when the radio doesn't work it can be due to a local hardware or software configuration or it can be due to a change in a router a thousand miles away that the operator didn't touch.

It is very tempting for operators and maintainers to try and fix something that may not actually be broken. Understanding and accepting that reality and taking a pause to allow other people to figure out the problem for you is a great challenge. Most Soldiers want to fix it and want to fix it right away. It takes a lot of time and patience to allow other people to assist in that process.

Can you describe a real-world scenario to illustrate the operational value of having network connectivity while on-the-move?

Most of our Army Battle Command or Mission Command Systems are laptops or data devices that store and share information in a client server role. This equipment may not always be utilized while moving down the road because the vehicle commander and the driver have other things to look at, but the equipment can continually update while they are doing that. The equipment will be immediately ready to go as soon as that operator

needs it. If the commander is in the midst of the battlefield and the orders change, but they don't impact him right away, he can get that later. He can get that off of email, Command Post of the Future or look at Tactical Ground Reporting as soon as he has time to pause. On-the-move technology decreases the delay in communications that is naturally present while waiting to receive new information. One of the greatest examples of immediate use of data on-the-move would be a route clearance platoon that gets its brief, rolls out and is executing its mission over a period of five to 12 hours. Previously, if the intelligence community got new information, you could radio it down, but you might miscommunicate exactly what the new threat is or how to handle it. With data on-the-move you can actually send images. You can send directions and locations. You can be clear, precise and minimize ambiguity. That additional clarity should allow the route clearance platoon to find many more devices that might be out there, minimize damage to equipment, and actually save lives.

How will Warfighter Information Network-Tactical Increment 2's upgraded NetOps component facilitate the planning, initialization, monitoring, management and response of the network at your level and throughout the brigade?

What I see it bringing to the fight is a greater efficiency, an ability to manage a complex network by effectively managing multiple pieces of communications equipment without having to physically touch them. WIN-T Increment 2's NetOps will provide increased network situational awareness at the battalion level and will enable sharing that information to the unit level.

It will also help to ensure and confirm that all of the necessary configuration changes that happen overtime occur and we don't leave one piece of communications equipment out to dry. Everything updates at the same time and allows you to view a coherent network that works and functions without having to go up to higher levels to ask them "Hey, is my stuff working?" WIN-T Increment 2 should eventually bring a lot of that situational awareness down to the company level. It will take a lot less time and effort to manage our own equipment and alleviate a lot of stress off of the brigade NetOps, which is now beginning to have more and more equipment to manage than it has ever had before.

From your perspective, what will be the value of fielding the network as an integrated "capability set" throughout the brigade, rather than fielding equipment piece by piece?

The largest benefit is that you won't have to integrate piecemeal components that have different configurations. They have actually been put together, utilized and tested. You receive a relatively full and complete package. This allows you to transition to new equipment with confidence and an understanding that it will operate, without the problems of trying to use two systems at once or having things not be backwards compatible.

What are some of the major lessons-learned from the NIE setting that you think the Army could apply to its planned network upgrades?

The Network Integration Evaluation is the largest integration of anything that I have ever experienced myself. Outside of the NIE we do small updates. We will update a system's software. We'll update one section of one

capability. In the NIE we bring hundreds of pieces together and find that it is extraordinarily important not just to look at the one piece of equipment to ensure that it functions, but to understand how it impacts the rest of the environment. You need to make sure that when you add it to the network it is not going to cause outages and that it will continue to function and create the capability that it was designed for. A lot of times these systems may be backwards compatible with themselves, but they rely on transferring data to other Army systems and those systems are not always at the same level. If one system leap-frogs in front of the other, you get a mix-match of capabilities and in a highly technical world a mix-match of protocols do not talk to each other in the right way. So upgrading all the components at the same time and understanding their interoperability is huge when it comes to updates, integration, and maintaining a level of communications that don't reduce your capabilities.

CPT Charles Gallagher Feher has served as the battalion (4-27Field Artillery Regiment) communications officer for the 2nd Brigade, 1st Armored Division from May 2011 to the present, and has served in 2/1 AD for over two years. He was deployed for 15 months in Operation Iraqi Freedom with the 3rd Heavy Brigade Combat Team, 4th Infantry Division in 2007, where he served as a special troops battalion assistant operations officer as well as a company executive officer in a Signal company within the same battalion.

Amy Walker is a staff writer for Symbolic Systems, Inc. supporting the Army's Program Executive Office Command, Control and Communications-Tactical (PEO C3T). She graduated from the College of New Jersey.

Brigade Signal officer describes S6 role

By Josh Davidson

Please describe the role and responsibilities of the brigade S6 at the Network Integration Evaluation.

As the brigade Signal officer or S6, I'm in charge of communications throughout the brigade. That includes everything from the upper tactical internet – or the backbone communications, like the internet connection you have in your house – all the way down to the battalion level. On a day-to-day basis, it depends on where we are in the arena (of conducting mission scenarios). If it's starting up, we're initiating those communications, and at that point it's focused a lot on your voice communications. It progresses on to that backbone network operations. In a stability phase, my job is primarily focused on keeping the communications where they are and figuring out how we can improve them down to the battalion level.

How does the S6 coordinate the battle with the other functional area experts and operators inside a Tactical Operations Center?

In today's fight, almost everything we have out there is networked. One of the challenges in the S6 communications world is making sure you have situational awareness of the battle that's going on. It's very easy to stay separated and just focused on the network without realizing what its effects are on the rest of the systems that are out there. Obviously, the reason that we have the network is to be able to communicate and be able to push data across to those systems. So it's really incumbent upon us as communicators to make sure we are intimately involved with the fight – both the S3 in operations and with the other slice elements to make sure we are figuring out how to best meet their needs so they can pass their data along and can do their part in the fight.

What will be the impact of a network that can push more data to the company level?

It's critical not just to the company level, but to the Soldier level. There's always the question about too much information going up and down. But one of the things we say in the Army is "every Soldier is a sensor." So whether it's the company or the Soldier level, there's a lot of information they can gather, and there's information we know we can push down to them. Historically that's always gone down different ways, whether it's FM which is voice only or as we moved on and added a little more network

bandwidth, we started to push down some static images. We're now at the point where we [can push data] rapidly. They say a picture's worth a thousand words – well, a video can be even more than that. So when video comes to us, we look at it and see what it means and push it back down to that company level. Instead of that taking potentially days or weeks because we had to mail information, we can now do that over a network so they can use that information right there on the battlefield.

MAJ Stephen Dail
Communications Officer (S6)
2nd Brigade, 1st Armored Division

How do the improvements in Network Operations tools as part of Warfighter Information Network-Tactical Increment 2 impact your situational awareness of how the network is functioning?

In the maneuver world we have what's called a common operating picture and that's kind of what Command Post of the Future gives you--the ability to see all the different things going on at once. In the network world, we are a little behind in that area and we are trying to move forward. It's not as much of a challenge when you're in a static environment, but as you start to transition to command on the move [with Increment 2], it's very important that we have that situational awareness, that common picture of the network itself. All of the Increment 2 systems have position location information. They actually show where those systems are on the battlefield. So now I can look at a device that's showing me "red" [not operating] and find out if it's still on a Forward Operating Base or still in a secure area. That way I know it's probably (just) turned off. But if I see it moving across the battlefield and I'm having a problem talking to it, then I know there's an issue. So it gives me more situational awareness to say, This is an area I need to focus. This is where I need to look.

How much network troubleshooting is done automatically, and how much are you doing as the S6?

I'd like to say it's primarily automatic, but we're

Delivering the network to the edge

By Claire Schwerin

Today, the Army is giving dismounted troops the networked tools to exchange information and affect the battle in real time. It is recognition of the intelligence-gathering tenet that at the tactical edge, every Soldier is a sensor.

Tactical handheld devices resembling commercial smartphones and running various mission "apps" will be fielded to team leaders and above allowing them to communicate seamlessly within their units and with higher headquarters. These devices will connect to the Army's larger tactical communications network through the Joint Tactical Radio System Rifleman Radio, an advanced two-pound radio that can transmit voice and data such as text messages, GPS locations and photos.

"It gives my commander a full picture of what's going on as far as situational awareness," said 2LT Adam P. Martin, a platoon leader with the 2nd Brigade, 1st Armored Division. "He can see where guys are on the ground. If we see something – a vehicle, a person or an IED [improvised explosive device] – we can send pictures straight to them so they can see what we're looking at. It gives a better picture for [higher echelons], and if they know

something [we don't], they can pass it down to us and we can react quicker."

Through the combination of new technology, such as the Nett Warrior handhelds, and upgrades to existing systems like Force XXI Battle Command Brigade and Below/Blue Force Tracking, Army leaders aim to empower lower echelons with more information and connectivity than ever before. Dismounted Soldiers will execute missions with greater situational awareness and agility, adapting their plans based on real-time information communicated throughout their brigade combat team.

PFC Philip Kerr said, during one scenario at the Network Integration Evaluation 12.1, the Nett Warrior made it possible to telegraph throughout a platoon which buildings had been cleared. To show which areas had been cleared and where they believed the enemy was hiding, a "chem light" application was used to place on screen icons, which were then simultaneously broadcast throughout the squads involved in the operation..

"If there's ever a situation where you're really not sure what's going on, you can just

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Brigade S6 questions

not quite there yet. One of the advantages of a dynamic routing network like we have here is that they do establish and create those links relatively automatically. For the Soldier and operator in the vehicle, they can establish and break those links and they'll drop as they move across the battlefield. Very little interaction is required of the operator in that vehicle. From the NetOps perspective here though, it can create some other routing changes for us that we have to do. For example, if we have a Point of Presence or

a Soldier Network Extension [vehicle] as they move across the battlefield, or an aerial vehicle moves across the battlefield, you may see some of those green links establish themselves or break. That's where we have to manage it here from NetOps and say, OK, is that a good thing? Do we have to change how we're doing the routing? It kind of depends what level you're at. At the brigade level we have to do some fairly in-depth and constant management of that network. The tradeoff on that is the operator who is in the vehicle has to do very little.

Josh Davidson *is a graduate of The College of New Jersey (formerly Trenton State College), in Ewing, N.J. Prior to becoming a government civilian and strategic communications director with PEO C3T, he was an investigative, music, sports and municipal journalist with numerous publications including Gannett Newspapers. He has interviewed GEN (Ret) David Petraeus, GEN Kevin Chilton, and GEN Ann Dunwoody. He has covered numerous tests, exercises and events related to Army satellite communications systems and applications.*

A Soldier from the 2nd Brigade, 1st Armored Division demonstrates a Nett Warrior device during the Network Integration Evaluation 12.1 in November 2011.

pull this out and see; OK, this building's been cleared. That area should be good. Here's where all the guys are at right now, and there's the bad guy," Kerr said.

Using the software for Joint Battle Command-Platform, the successor to the widely fielded FBCB2, the Nett Warrior displays the precise locations of dismounted Soldiers to their teammates on the ground and in vehicles, aircraft and command posts, helping prevent fratricide. The vehicle-based version of JBC-P will be involved for the first time at NIE 12.2, where the Army researchers will collect Soldier feedback on JBC-P's totally redesigned user interface, faster situational awareness updates and availability of Tactical Ground Reporting data.

The "bridge" system from the current FBCB2 to JBC-P, known as the Joint Capabilities Release, was used at the first two NIEs. Operators from the 2/1 AD praised the speed and accuracy of JCR updates of position location information, which are exponentially faster than the original FBCB2 due to the increased bandwidth delivered by the BFT-2 satellite transceiver used with JCR and JBC-P. Soldiers also took advantage of the new "chat" feature to send instant-messages in real time, creating multiple chat rooms to coordinate quickly and accurately across multiple units.

"It's super easy to use – that's the best part," said SSG Cody Moose. "Before every mission, either me or the platoon sergeant will start a chat room. We'll start it up. Everybody accepts it before we leave – kind of like you do your radio checks. 'Everybody make sure you're on the chat room.' And then we use it for everything."

The ability to transmit blue force tracking information, photos and a host of other data across more echelons in real time will allow the principle that "every Soldier is a sensor" to reach its full potential, said MAJ Stephen Dail, 2/1 AD S6. He described a situation in which a Soldier with only a voice radio would encounter something or someone suspicious and use a camera to take a photograph.

"Right now, the way we fight, he'd have to take that back up to his company level, plug it into a computer, maybe even take it to the battalion level, (then) have somebody analyze it. Wait until it comes back down. That can be a very long process," MAJ Dail said. "With the enablement of [handheld devices and software-defined radios], he can take that image on the handheld. He uses that radio and pushes it right up to the squad-level vehicle. It immediately publishes across the JCR/BFT, so we can see here at the brigade where that Soldier is on the battlefield right now and what that image is that he's seeing. This may allow us to provide more information on the image that he has, and push that right back down to him so that information can be used immediately."

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New Army Agile Process

By Katie Cain

Army leaders are aligning programs so that operational units receive better capabilities more quickly through integrated and sustainable network capability sets.

The catalyst of this expedited deliver system is a process known as Capability Set Management. Fielding the network as an integrated capability set throughout a brigade, rather than fielding individual pieces of equipment provides many benefits to Soldiers. This dramatically reduces or eliminates the integration burden on units in theater.

CPT Charles G. Feher, 2nd Brigade, 1st Armored Division, said the greatest benefit is that Soldiers do not have to integrate piecemeal components that have different configurations. "They have actually been put together. They've been utilized. They've been tested and you receive a relatively full and complete package," he said.

To support Capability Set Management synchronized fielding efforts and to ensure that the Soldiers keep pace with industry and technological advances, Army leaders are transforming the existing acquisition methods through a seven-phase Agile Process. The objective is to improve efficiency and effectiveness, and reduce the amount of time and resources necessary to respond to the rapid changes in Soldier requirements associated with current operations, emergent information technology and modifications to the Army Force Structure.

Through the Agile Process, Army leaders assess capability gaps, rapidly form requirements, solicit mature industry solutions and perform laboratory and field evaluations in order to inform acquisition decisions. This directly supports Capability Set Management in identifying critical operational gaps and solutions, while providing operational validation of these solutions for inclusion in capability sets. Synchronized fielding of networked capability sets is the output stage of the Agile Process. It takes prototype designs that have proven technical and operational merit during the Army's NIEs and matures them into producible products, while ensuring final system integration and sustainment plans, prior to fielding a capability set to operational units.

A capability set is the entire package of vehicles, network components and associated equipment and software that provide an integrated network capability from the static Tactical Operations Center to the dismounted Soldier. These capability sets will extend the network down to the individual Soldier and enhance Mission Command On The Move and Soldier connectivity.

The Army's first fully-integrated Capability Set, known as CS13, will field a 'Bridge' network architecture based on a hybrid integration of satellite-based communications and terrestrial networking radios. The CS13-fielded 'Bridge' network solutions will provide a baseline network until the Army's objective networking radio hardware and waveforms are ready for implementation.

The System of Systems Integration Directorate, under the Assistant Secretary of the Army for Acquisition, Logistics and Technology is synchronizing the implementation and fielding of CS13 to deployed forces. To accomplish this, SoSI is ensuring integration and interoperability between Army Programs of

The Army is currently working network integration design on 27 Mine Resistant Ambush Protected and Mine Resistant Ambush Protected All-Terrain Vehicle prototypes to finalize engineering models prior to entering production in summer 2012. The vehicle integration will support the fielding of the first integrated capability set, known as CS13, to the Warfighter at the tactical edge.

yields synchronized fielding

Record, current force systems and urgent need systems in order to achieve integrated unit capabilities. The integration approach is implemented through development, acquisition, testing, product improvement and fielding, while ensuring total ownership cost reduction.

Key to this effort is bringing the Army's Program Executive Offices and project managers together during the NIE/Agile Process. This is done through the Capability Set Integrated Master Schedule, or IMS, for production and deployment. The IMS will become the backbone of CS13 as its purpose is to synchronize the network and vehicle PMs' master schedules as they relate to integrating and fielding the CS13 capabilities. The IMS will also be used to validate the funding required for the CS13 integration and fielding effort for each formation (infantry, stryker and heavy brigade combat teams).

"SoSI has been very successful in pulling the network and vehicle communities together for the CS13 effort," said Elizabeth Miller, chief engineer, product director, synchronized fielding, SoSI. "We have combined meetings every month to go over the status of the effort and to resolve any issues." SoSI manages the IMS, maintains

configuration management of the final capability set technical network baseline approved during NIE process, and coordinates individual fielding among PEOs, PMs, U.S. Army Forces Command, G-8 and the gaining brigade combat team, while maintaining sustainment planning and asset handoff to the gaining units.

The final execution stage of the synchronized fielding process is New Equipment Training/New Equipment Fielding in which the gaining unit receives training on each newly fielded system and takes ownership of the new equipment upon completion of any staging, installation and handoff requirements.

"Due to the number and complexity of the Capability Set 13 network systems being fielded, we are planning to include a System of Systems Network Integration NET upon completion of the individual system NETs," said Greg Outland, deputy associate director, synchronized fielding, SoSI. "This network integration training is designed to provide the unit network maintainer (S-6 Soldiers) with the skills necessary to establish, troubleshoot and maintain the network."

Synchronized Fielding is a true Army effort, involving collaboration and synchronization

across the ASA (ALT), Army Material Command and Army Test and Evaluation Command communities. "Synchronized fielding is one of those things in which the Army can take a lot of pride," said Paul Wilson, project director, Synchronized Fielding, SoSI. "It's truly a team effort. It requires almost every PEO and every PM in the Army to work together to make it happen, and it's not just the PEOs and PMs; it's also the Army staff, research and development centers and the test community that serve as the enablers that make it all possible."

This joint effort will allow for as many as eight brigade combat teams to be fielded with CS13 beginning in fiscal year 2013. Priority of fielding is to the Army's deployable expeditionary forces slated for deployment to Afghanistan.

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ACRONYM QuickScan

2/1 AD - 2nd Brigade, 1st Armored Division
AMC – Army Materiel Command
ASA(ALT) - Assistant Secretary of the Army for Acquisition, Logistics, and Technology
ATEC -- Army Test and Evaluation Command
CS – Capability Set
FORSCOM - U.S. Army Forces Command
IMS – Integrated Master Schedule

NET/NEF - New Equipment Training/New Equipment Fielding
NIE - Network Integration Evaluation
PEO – Program Executive Office
PM – Project Manager
POR – Program of Record
SoSI – System of Systems Integration (directorate under ASA(ALT))
TOC - Tactical Operations Center

Multi-functional communications units reorganize under NetOps construct

By MAJ Lan T. Dalat

Back in 2009, Headquarters Department of the Army directed a Force Design Assessment on the brigade combat team that resulted in the mandate of having the Network Operations functions diverted from the brigade Signal company to the brigade S6 section without increasing personnel.

Furthermore, it became evident that more change was needed as the BCT and Multi-functional brigade S6 sections could not meet all requirements necessary to protect and defend the warfighter network. It became necessary to modify the brigade S6 sections in order to address these shortfalls.

According to the NetOps Capabilities Based Assessment in 2009, the current S6 section cannot fulfill nine major gaps within NetOps and Cyberspace/Electromagnetic functions ranging from protecting to defending of mission command networks and systems against threats that potentially prevent commanders and staff from having access to operational knowledge which may hinder the processes of understanding, visualizing, describing, directing, leading and assessing.

The brigade S6 lacked the ability to dynamically respond to network threat events in real time. This potentially offered unauthorized users access to critical operational knowledge. In addition, the section did not have the ability to collect and report

Soldiers try out new digital applications.

the threat data once intrusion occurs.

To mitigate these known gaps, the director of Capability Development Integration Directorate of the Signal Center of Excellence at Fort Gordon, Ga., proposed the following changes to the force structure of the BCT and M-F brigade S6 section through an expedited and abbreviated process of the Force Design Update which is known within the Army as the FDU Jr. to ensure fast implementation of force design while the Army is still at war. The changes must meet the requirements stated in the Network Operations construct to include Enterprise Management, Network Assurance, Content Management , and 24-hour operations through all phases of unified land operations.

First, the Enterprise Management section within the brigade S6 must establish restoration priorities for assigned systems and networks. Additionally, the section must develop and oversee the implementation of policies, procedures, and special instructions to its users. This section is also involved in coordinating frequency assignment, Satellite Communications access, Request for Service release, Telecommunication Service Request, tactical Telecommunication Service Order preparation and release, and communications system tasking.

Second, within the Network Assurance section, team members must coordinate the efforts of subordinate network control and operation centers to detect, isolate and contain Information Assurance events and incidents.

Next, the Content Management section must establish priorities for information gathering and reporting through the commander's critical information requirements, emerging intelligence from the commander's operations area, emerging operational information and public affairs guidance.

Finally, the Tactical Current Operations or TAC CP section is required to be present in the brigade tactical command post to represent the brigade S6 at the forward area where they advise the commander and/or his staff on the status of all communications issues.

In order to redesign the BCT and Multi-functional Brigade S6 staffs IAW the tenants of NetOps Signal Corps leaders had to find ways to implement changes without adding more Soldiers. There is a delicate balance to reconfiguring the force structure within the brigade S6 section. During the period in which the Army is downsizing, Signal Corps members

Soldiers from the 2nd Brigade, 1st Armored Division collaborate using Mission COmmand applications inside a Tactical Operations Center at NIE 12.1.

have done more with less to ensure mission success. Signal leaders are making sacrifices to ensure the right Soldiers with the right skill sets perform the right missions. In order to maintain superiority in the Network Assurance arena, Signal Corps leaders had to assign one of its best technicians to that post. In doing so, a position of Network Defense Technician in the rank of chief warrant officer three must be added to the Table of Organization and Equipment at the cost of losing the Signal Company's XO as the bill payer.

As stated earlier, the NetOps functions were directed to move from the brigade Signal company to the brigade S6 section without an increase to personnel. Based on that guidance, a key position at the Signal company must be cut to make room for a CW3 with a military occupation specialty of 255S to provide the necessary network assurance for the entire brigade.

In addition to the changes made with the organization of the brigade S6 section and adding a new CW3 position to the structure, there are many other changes with enlisted personnel in the force structure to ensure mission success. Without these prudent changes, commanders will have reduced mission command essential capabilities that may impact in execution of missions in unified land operations.

MAJ Lan T. Dalat is a Force Design Directorate Analyst at Fort Leavenworth, Kan. His education includes a Master's in Information Technology Management from Webster University. He is also a graduate of the Command and General Staff College. MAJ Dalat's former positions include executive officer, 36th Signal Battalion, 501st Military Intelligence Brigade S6, commanded U.S. Deployable Communications Module A, 2nd NATO Signal Battalion, and commanded C Co. 53rd Signal Battalion.

Acronym QuickScan

BCT - Brigade Combat Team
CBA - Capabilities based assessment
CCIR - Commander's critical information requirements
CDID - Capability Development Integration Directorate
CW3 - Chief Warrant Officer Three

FDA - Force Design Assessment
FDU - Force Design Update
IA - Information Assurance
M-F brigade - Multi-functional brigade
MOS - Military Occupation Specialty
NETOPS - Network Operations
RFS - Request for Service

SATCOM - Satellite Communications
SATCON – Satellite Control
TSR - Telecommunication Service Request
TSO - Telecommunication Service Order
TOE - Table of Organization and Equipment

Technically shaping

By COL Mike Brownfield and MAJ Philippe Persaud

The Fort Gordon Signal Center of Excellence, Capability Development Integration Directorate, Experimentation Division, often referred to as the Network Battle Lab, has actively supported the bi-annual Network Integration Evaluation hosted at Fort Bliss, Texas since its inception as the Army Experimental Task Force.

The Lab provides operationally-based, "Green-Suit" technical support to the NIE through technical research, analysis, experimentation, assessment, SATCOM/network services and vendor mentorship. The Network Battle Lab's director, COL Mike Brownfield, works closely with the NIE TRIAD (Brigade Modernization Command, System of Systems – Integration and the Army Test and Evaluation Command), along with other Army lab partners (Communications-Electronics, Research, Development and Engineering Center - Space and Terrestrial Communications Division, the Maneuver Battle Lab, and the Mission Command Battle Lab), to achieve a common goal of the Agile Process - integrating relevant Warfighter capabilities into a Brigade Combat Team capability set.

As the implementation of the Army's Agile Process matures, the Network Battle Lab continuously realigns its core competencies to properly configure, integrate, and assess network-related systems under evaluation prior to their operational assessment in the desert of the White Sands Missile Range. Many NIE SUE systems have already been combat-tested, but are not currently part of an acquisition program of record. These systems still need a doctrine, organization, training, materiel, leadership, personnel, and logistics impact analysis in order to properly integrate them into Army networks. Other networking SUEs are new, commercially-based systems that show potential to meet specific Army warfighting capability gaps. Given today's ever-changing technological advances associated with Moore's Law, the Army must now take a more pragmatic acquisition strategy that enables it to purchase less equipment more often. This new acquisition approach allows rapid procurement of the latest state-of-the-art equipment to align with a designated Army capability set schedule for deploying BCTs.

The Network Battle Lab provides operationally-based technical support across all seven phases of the NIE Agile Process shown in Figure 1. During each phase, the lab assists the NIE TRIAD by accomplishing key supporting tasks. Phase 0 begins with the capability needs assessment and prioritization of warfighting requirements to satisfy the Army's operational capability gaps. Working in partnership with SoS-I and the SIGCoE's Materials Requirements Branch, the Network Battle Lab helps refine capability gaps before and during Phase 0 by researching their technical requirements and desired specifications.

This research and follow-on analysis aids vendors in building and maturing their candidate solutions to better align with the Army's current and future communication needs.

In some instances, the Lab's research requires experimental excursions designed to shape and test a potential NIE candidate before formally evaluating its capabilities. Figure 2 (on the next page) shows

SFC Anthony Guler and SFC Margaret Movinsky set up a satellite terminal for NIE 12.2 Tech Assessment/Risk Mitigation Effort.

the NIE battlefield

the Lab's iterative development cycle in preparing a candidate for NIE and Army procurement success. The technical results of these operational exercises conducted during the rehearsal step also inform the NIE solicitation process by providing valuable insights on a system's actual performance. One such excursion led by the Network Battle Lab was the 2011 Army Wireless Network – Tactical experiment sponsored by ARCICs Advanced Capabilities Directorate and conducted at Fort Bliss, Texas. The AWN-T experiment validated the use of Commercial-Off-The-Shelf mobile broadband wireless technology supporting expeditionary operations. This validation included the integration of commercial 802.16e WiMAX base stations into a WIN-T Increment 1A network. Voice, mission command, and video services were provided down to the rifleman-level using COTS 4G LTE cellular phones. This AWN-T experimental excursion shaped commercial 3G and 4G cellular phone technologies for immediate inclusion into NIE 12.1. Similarly, PM-Soldier Warrior joined the Battle Lab network experiments to conduct field tests on their soldier-based, network-enabled systems. Several of these systems subsequently also advanced directly into the next NIE. Other PM-SWAR systems were further evaluated during the Maneuver Center of Excellence's Army Expeditionary Warrior Experiment to determine their practical usability and squad-level integration requirements. As both PM and vendor SUEs prepare for the

The Signal Center of Excellence Network Battle Lab and NSC-T Hub Node Satellite Terminals.

NIE exercise, a risk-reducing configuration and WIN-T integration exercise at the Network Battle Lab provides a full-dress rehearsal in a controlled environment.

The Network Battle Lab mentors industry vendors on their development of candidate technologies destined to participate in NIE. Some of these vendors lack either the military operational experience or the direct access to the military network equipment necessary to properly configure and integrate their equipment into existing Army networks. The Lab's military networking engineers, chief warrant officers, and networking noncommissioned officers leverage their technical military training and personal combat experience to recommend how emerging technologies can be improved or modified to better meet the needs of the Warfighter.

Recommendations may range from changing hardware components for reliable operation in a harsh field environment to standardizing system interfaces that reduce the length of new operator training. By partnering with the vendors early, the Network Battle Lab helps shape their design and system configurations to better meet the Army's operational

Figure 1 - The Network Battle Lab Execution Support Tasks for the NIE Agile Process.

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requirements. This relationship also increases the return value of time, money, and effort invested by all parties throughout the remaining phases of the NIE process.

In addition to research, the Network Battle Lab conducts a detailed analysis of NIE candidates' white papers during Phase two of the Agile Process. The most recent NIE 12.2 white paper review consisted of a detailed technical review of several dozen different technologies, looking specifically at their technical specifications and capabilities, to ensure they met all necessary operational and technical requirements. The results of the review are used during a eight-day Technical Integration Meeting hosted at Aberdeen Proving Grounds, MD, to provide recommendations to the technical selection board. The Network Battle Lab's Live Experimentation branch chief, MAJ Philippe Persaud, actively participates in

CW3 James Milby conducts performance tests on a Company Command Post System Under Evaluation.
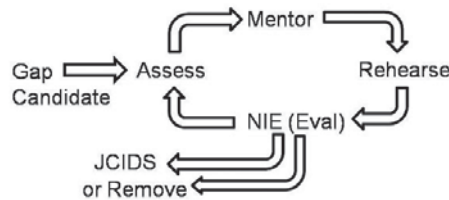
Figure 2 - The Laboratory Lifecycle Model for an NIE SUE candidate.

the SUE selection and evaluation processes. As a result of this selection board, a candidate technology will either be deferred or selected to participate in NIE.

The extent of the Battle Lab's technical analysis effort goes well beyond reviewing white papers and into actual analysis of a candidate's technology. After the post-phase 1 SUE selection Decision Point 1, CERDEC – S&TCD conducts lab-based, SUE candidate validation assessments.

The Network Battle Lab partners with CERDEC – S&TCD to review these lab-based assessments and further validates them against the SIGCoE's operational requirements. The results of this review are used by the General Officer Steering Committee during their DP2 selection process.

Once the candidates pass the second phase of SUE selection, the SoS-I, CERDEC, and Network Battle Lab consortium conducts a risk reduction experiment and lab-based assessment on each of them. A successful example of this risk reduction process was the NIE 12.1 integration of ITT's GNOMAD mobile command post system. ITT brought the equipment to the Fort Gordon Lab and worked with its network engineers to configure and fully integrate the system into the actual satellite network used during NIE. The Network Battle Lab also owns the WIN-T JNN and CPN tactical communications networking systems which fully replicate the surrounding tactical networks to ensure full operational system compatibility. BG Randal

A. Dragon, the BMC commander, later stated that the GNOMAD's system was one of the easiest systems to integrate during the network rehearsals of NIE Phase four. This lab-based assessment provides the Triad with technical performance data such as throughput, latency, jitter, and processor utilization that would be difficult to collect during the actual phase five operational tests conducted in a tactical field environment. In most cases, the labs create harsher network conditions than the actual field environment.

Through sponsorship from SoS-I and CERDEC-S&TCD, the Network Battle Lab recently conducted a technical evaluation and risk reduction exercise on seven different small Company Command Post systems destined for NIE 12.2. The experimentation required individual evaluation of all seven of the systems using highly detailed criteria and integration into the Warfighter Information Network-Tactical network. The Network Battle Lab's Network Service Center-Training satellite hub and the Defense Research and Engineering Network connected the Company Command Post systems located at Fort Gordon to the Mission Command servers located at Aberdeen Proving Grounds, MD. This distributed network facilitated concurrent testing and integration into the wider NIE lab-based risk reduction network. Through the rapid delivery of the detailed technical evaluation results, SoS-I and CERDEC-S&TCD were able to make an informed decision on the viability of candidate technologies and their suitability for further assessment in a field environment at Fort Bliss.

One of the most significant capabilities that the Network Battle Lab brings to NIE is its WIN-T regional hub node,

the Network Service Center-Training. For each NIE cycle, the Network Battle Lab's NSC-T provides commercial Ku band satellite transport service and extends required SIPR/NIPR services to NIE participants during phases four and five. This effort requires a highly detailed satellite communication architecture plan which the NSC-T engineers develop in direct coordination with a technical working group led by the BMC. Additionally, a team of Network Battle Lab satellite and network engineers provide 24/7 technical support to the NIE during phases four and five to ensure that the WIN-T network operates effectively during the experiment. Cost-sharing efficiencies created by the other NSC-T satellite training, fielding and experimental missions reduce the expense of providing satellite service to the NIE by more than $1.8 million annually.

In addition to supporting the actual NIE, the NSC-T also provides WIN-T satellite support to many of the pre-NIE experiments which include pre-experimental assessments, risk mitigation experiments, and configuration testing.

The Network Battle Lab is proud to serve as a supporting cast member to the BMC, SoS-I, ATEC, and CERDEC-S&TCD. The Lab's technically-focused, operationally-grounded perspective and full complement of tactical and global communications assets replicating the entire network bring tremendous value to the NIE Agile Process throughout all phases. As the Army's Agile Process evolves, the Network Battle Lab will continue adapting to maintain its quality technical research, analysis, experimentation, assessment, rehearsals, SATCOM/network services and vendor mentorship support to the NIE team.

COL Michael Brownfield *is the Director of the Network Battle Lab, Fort Gordon, Georgia. Mike earned degrees in Electrical Engineering from the United States Military Academy, Stanford University, and Virginia Tech. Starting his career as an enlisted tactical radio repairman at Fort Sill, OK, Mike has served in a wide variety leadership and staff positions throughout the Army. He deployed from Germany for Operations Desert Shield and Storm with the 93rd Signal Brigade, VII Corps, commanded in the 101st Airborne Division (Air Assault!), and deployed during Operations Enduring Freedom and New Dawn in Iraq. His most recent assignment included III Corps Chief Network Engineer and the Director of the Joint Network Operations Control Center, U.S. Forces – Iraq. Mike taught Electrical Engineering, Computer Science, and Military Science to the cadets at the U. S. Military Academy, West Point. He is a senior member of the Institute of Electrical and Electronics Engineers, a licensed professional engineer in the Commonwealth of Virginia, a certified information systems security professional, a Cisco certified network associate, and a PMI-certified project manager.*

MAJ Philippe Persaud *is a five-year prior enlisted, year-group 96 basic-branch Aviation officer who graduated the Telecommunications Systems Engineer Course in 2004. MAJ Persaud has served as the brigade telecommunications engineer for both the 11th and 3rd Signal brigades. Most recent assignments include serving as the network management division chief for the 442d Signal Battalion at Fort Gordon and chief of Live Experimentation at the Network Battle Lab. MAJ Persaud possesses a Bachelor of Science in Electrical and Computer Engineering from the University of Wisconsin – Madison and a Master of Science Degree in Telecommunications Management from the University of Maryland.*

Acronym QuickScan

APG - Aberdeen Proving Grounds
AEWE - Army Expeditionary Warrior Experiment
ATEC - Army Test and Evaluation Command
AWN-T - Army Wireless Network – Tactical
BCT - Brigade Combat Team
BMC - Brigade Modernization Command
CDID - Capability Development Integration Directorate
CAN - Capability Needs Assessment
CERDEC – S&TCD - Communications-Electronics, Research, Development and Engineering Center - Space and Terrestrial Communications Division

FOC - Force Operating Capability
DOTMLPF - Doctrine, Organization, Training, Material, Leadership, and Education, Personnel, and Facilities
GOSC - General Officer Steering Committee
MRB - Materials Requirements Branch
NIE - Network Integration Evaluation
NSC-T - Network Service Center-Training
SOSI - System of Systems – Integration
SIGCoE - Signal Center of Excellence
SUE - Systems Under Evaluation

Signal Center of Excellence Students using Quick Response Codes technology

By Bonnie Heater

The General Dynamics LandWarNet School at Fort Gordon is developing mobile training content which uses technology referred to as " Link Code" to train our Soldiers.

There are several different types of these codes, and "QR" or Quick Response code is the most popular now, according to Thomas Clark, LandWarNet School, General Dynamics, C4 Systems business manager.

"Quick Response codes are used with a mobile device such as a smart phone," said Clark. " The code can be placed on any flat surface and translates to a small amount of text such as web link. Instead of typing, you can scan a QR Code with the smart phone's camera. The link takes you to useful information about whatever it is you are working with.

"The code can be used in any situation to bring up information

on the spot," said Clark. "A QR Code on a piece of [military] equipment can link to a user's guide, maintenance manual, or howto video." This is particularly helpful to a deployed Soldier.

Quick Response codes can be read by using an application on the mobile device, called a barcode scanner. Normally, one can download the application in about a minute. " The application starts the camera, and then aims the camera at the QR code, and you get a link to where the information is stored," explained Clark. "In our case at the [LandWarNet] school it is on our training server."

At the schoolhouse Soldiers training in Military Occupation Specialties: 25S, Satellite Communications Systems Operator- Maintainer, and 25Q, Multichannel Transmission Systems Operator- Maintainers, are learning to use the AN/TSC-185 Satellite Transportable Terminal. They use a Motorola Zoom 10 inch Android 3.0 WiFi based tablet to read the QR Code on the AN// TSC-185 STT. This permits Soldiers to access learning modules, reference material such as technical manuals, maintenance and parts manual for the AN/TSC-185 Satellite Transportable Terminal at the school and anywhere they are deployed to.

This equipment gives Army Signal Corps Soldiers the means to send a signal from the AN/

TSC-185 SST at one location to a designated satellite in space and transmit the signal back to earth to another AN/TSC-185 SST located in different area. Since the AN/TSC-185 SST uses these applications: Command and Control Reachback and Range Extension at Unit level or high, voice, data, video, Everything over Internet Protocol and Voice- Over- Internet Protocol all forms of communications can be established in any combat area.

" The same modern communication technology used in civilian communities is now available to the Army in the field with this equipment," said Michael Wilson, an instructor at the Fort Gordon LandWarNet school. "The advantage to this system [AN- TSC-185 STT] is it's highly mobile. We can pick it up and take it to any combat situation.

"Our Soldiers are able to support Joint Network Node at brigade and division, battalion command post node at battalion, and WIN-T network with it," added Wilson.

Quick Response Codes, such as the one used on the AN/TSC- 185 SST, allows the Army to obtain instant information and follow links. The modern-art-looking little box can store about the same amount of information as a Tweet, which is about 140 characters. It can be stored in the form of a web link, e-mail address, phone

number or Short Message Systems message, or typical business card contact information.

"A QR code stores its information in a pattern of small squares," said Clark. "More information means a larger code with smaller squares that eventually becomes hard to decode."

According to Clark there are several advantages to using QR Codes. "A QR Code attaches to the physical world- something you can lay your hands on, such as a satellite terminal or a router," explained Clark. "The QR Code connects to the virtual world where you can learn more about the router. In a way, your equipment will talk to you if you can listen."

What is needed to listen is an application. "We use barcode scanner apps that are easily found in Apple and Android app [application] markets," continued Clark. " We use barcode scanner apps that are typically found on handheld websites.

"At the LandWarNet school we are currently using barcodes to give our students access to the cut-sheets used in configuring the WIN-T systems along with all reference materials to include videos or simulations products," said the C4 Systems business manager. " We are even using the QR Codes on our business cards that contain all of our contact information, so just by scanning the QR Code it will download our contact information and then ask if you want it saved in your contact information."

The use of such codes according to Clark is becoming more and more common in industry and we would expect the Army to follow.

"This code makes it easier to

PFC Jonathan Fancher, a 25Q, Multichannel Transmission Systems Operator-Maintainer, uses the Motorola Zoom Android based tablet to read the Quick Response Code, on the AN/TSC-185 STT.

access information without doing a search or typing in a long Uniform Resource Locator such as http:// www.boutell.com/newfaq/ definitions/ url.html. The Army is moving towards a learner- centric environment where quick access to information is vital. Any tool such as the QR Code that enables the flow of information will quickly catch on."

Although there are many advantages to using QR Codes there are also a few disadvantages to its use. One of the downfalls is you can't tell what it says, or even who put it there. "A spoofer can get you to click on a QR Code to a malicious link," explained Clark. "The Soldier sees a harmless looking webpage that might actually be running

Internet exploits such as malware [which is a harmful software such as a computer virus or Trojans designed to cause damage or disruption to a computer system]. That why we stress to them how important it is to ensure the QR Code is coming from a trusted source."

Whether there are some concerns with using a QR Code the risks associated with it use can be reduced. The QR Code app will show the link information, allowing a Soldier to make sure it is reasonable before connecting to it.

Bonnie Heater *is a writer/ editor for the Fort Gordon Signal Newspaper.*

Task Force Dragon Builds Regional Communications Network

CPT Maxwell E. Fuldauer

Task Force Dragon demonstrated how Signal Soldiers are getting the job done in the field.

Task Force Dragon deployed to Afghanistan as a part of the 2010 Presidential Force Uplift, in support of the expansion of the Regional Command – North area of operations. TF Dragon was composed of the Headquarters and Headquarters Company from the 307th Expeditionary Signal Battalion from Hawaii, B/44th Expeditionary Signal Company from Germany and A/151st Expeditionary Signal Company from the South Carolina National Guard. Since the start of Task Force Dragon's deployment, the customer requirements for the RC-N's U.S. contingent has grown from less than 100 customers to a now staggering number of over 8,000 customers.

As the network grew and changed there were many hurdles that had to be overcome to provide the customers with the high quality of service expected from the Army Signal Corps.

One of the first hurdles that TF Dragon had to overcome was the lack of communications infrastructure throughout the RC-N area of operations. Not just the infrastructure between Forward Operating Bases and Contingency Operation Posts but the infrastructure on the bases as well. At the time,

This is the unit patch for Regional Command (North). RC (N) is the German led coalition and joint headquarters commanding operations in the Northern Region of Afghanistan. RC (N) covers over 61,000 square miles from Afghanistan's border with Turkmenistan in the west through the Wakhan (Warrior) Corridor in the east bordering Tajikistan, China and Pakistan. This region's strategic location and diverse terrain has made it key in the support of the security and stability of the Government of the Islamic Republic of Afghanistan.
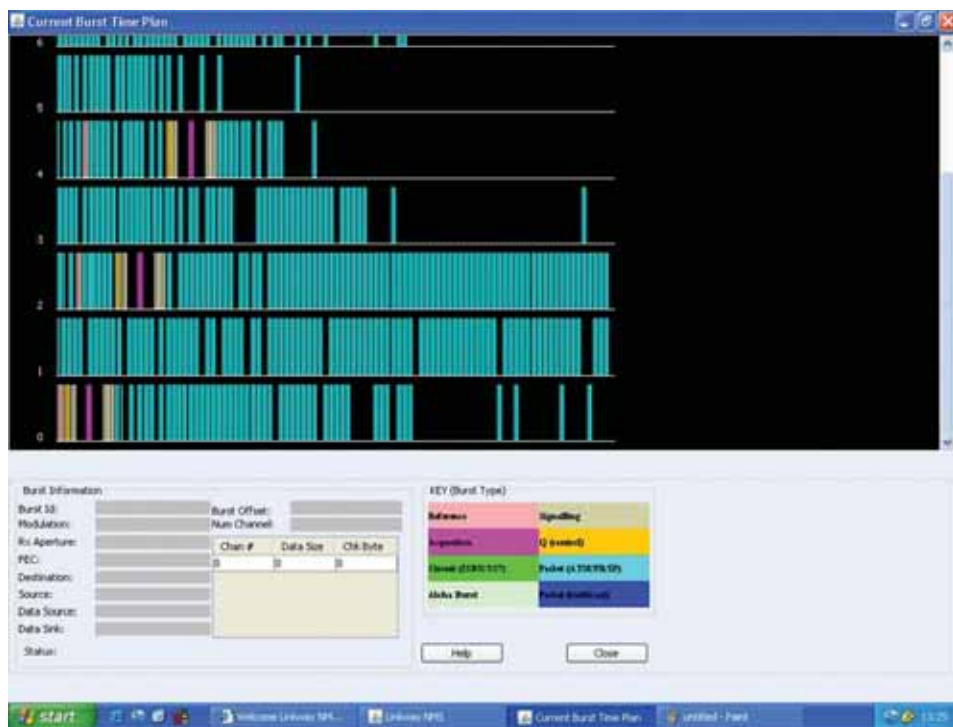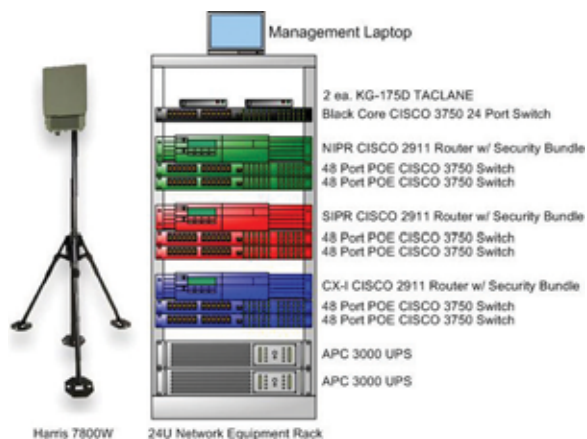

This burst time plan shows a snapshot in time of the traffic traversing the RC (N) TDMA Network supporting over 60 Terminals and over 8000 customers on the tactical network. This snapshot was taken prior to the introduction of the Harris 7800W Radio infrastructure and Area Distribution Nodes (ADN), when the network was at a constant 95% utilization rate.

many of the bases were still under construction; this meant construction teams were still clearing mines, building HESCO Barriers, tents and work places. At most sites the layout changed monthly if not weekly, making planning for communications very difficult, if not impossible. This level of non-predictability combined with the slow supply chains of Afghanistan left the TF Dragon Engineer's to develop new and inventive ways to extend services to the ever increasing number of customers.

The first solution was to provide customers access to enterprise services via SIPR, NIPR Access Points, Command Post Nodes, and Joint Network Nodes. In RC-N these nodes provide a relatively basic level of service thru either a shared mesh of seven, five mega symbol time division multiple access carries; or thru a dedicated three or four Mbps frequency division multiple access link (JNNs only).

This solution was logical and appropriate for the expansion, because by doctrine, that is how an expeditionary signal battalion deploys.

However, with continuously growing customer requirements and lack of base infrastructure, multiple tactical terminals on the same base were needed to cover all of the customer's requirements. It wasn't that the number of customers was too great for one node to handle in most cases; it was because of their dispersed location. In today's changing battle field, customers are forced to setup their locations where ever possible, which means the communications have to come to the customer. Because of this dispersion, multiple tactical nodes may be used to support geographically separated customers with much fewer requirements than the node is capable of supporting. From the outside this may appear to be overkill to provide support to several company command posts with a CPN, but in today's COIN fight there is a requirement to provide enterprise services down to the company and sometimes

This burst time plan shows a snapshot in time of the traffic traversing the RC (N) TDMA Network supporting approximately 50 Terminals and still over 8000 customers on the tactical network. This snapshot was taken after to the introduction of the Harris 7800W Radio infrastructure and Area Distribution Nodes. The network is currently at a well reduced 60% utilization rate.

This is an example of how the Harris 7800W Radio was used in Point to Multi-Point configuration to link separate Tactical Nodes and Area Distribution Nodes together, in order to best utilize the highest bandwidth, lowest latency node on an FOB (JNN with FDMA). By utilizing this infrastructure it allows for the virtual removal of TDMA nodes from the congested TDMA mesh in turn improving the quality of service to the customer.

platoon level. Because of the increasing number of tactical nodes in the TDMA mesh, the network began reaching a constant state of 95% saturation (See time burst plan old) which was causing network instability and poor quality of service to the customers. The saturation wasn't due to the number of customers; it was due to the number of nodes in the mesh. Reducing the dependency on the TDMA network was TF Dragon's next big challenge to solve. The question was how to reduce the demand on the TDMA mesh network but still provide a high quality of service to the customer sites with even the smallest

requirements.

TF Dragon's network engineers were able to work out a couple of courses of action to combat the taxing of the TDMA network and increase customer quality of service. The first was to interconnect the TDMA dependant nodes with the nodes capable of using a higher bandwidth, lower latency link, such as, FDMA or to Microwave Line of Site circuits. This interconnection virtually took the TDMA nodes out of the timeslot requesting cycle for the TDMA mesh but left the satellite link in place in case the interconnected FDMA/MLoS link failed. This type of interconnection is not too uncommon since it's been designed into the WIN-T architecture with the HCLoS system and Tactical Fiber Optic Cable Assembly runs.

However due to the limited land and material available and the layout of the FOBs and COPs; the laying of tactical fiber or the emplacement of the large WIN-T HCLoS shelters was not always an option. As a result, the interconnection was accomplished using a newer IP radio system.

The Harris 7800W IP Radio system has been used throughout theater in a Point to Point configuration for quite some time with a high rate of reliability. Because of its small size and efficiency, up to 108Mbps thru put in PtP mode, it has become a staple for Line of Sight communications in the theater, up to 54Km. However, in the North we were able to use it in its more versatile mode, Point to Multi-Point. Using the PtMP configuration and the sixty degree sector panel antenna we were able to build robust base infrastructure networks with
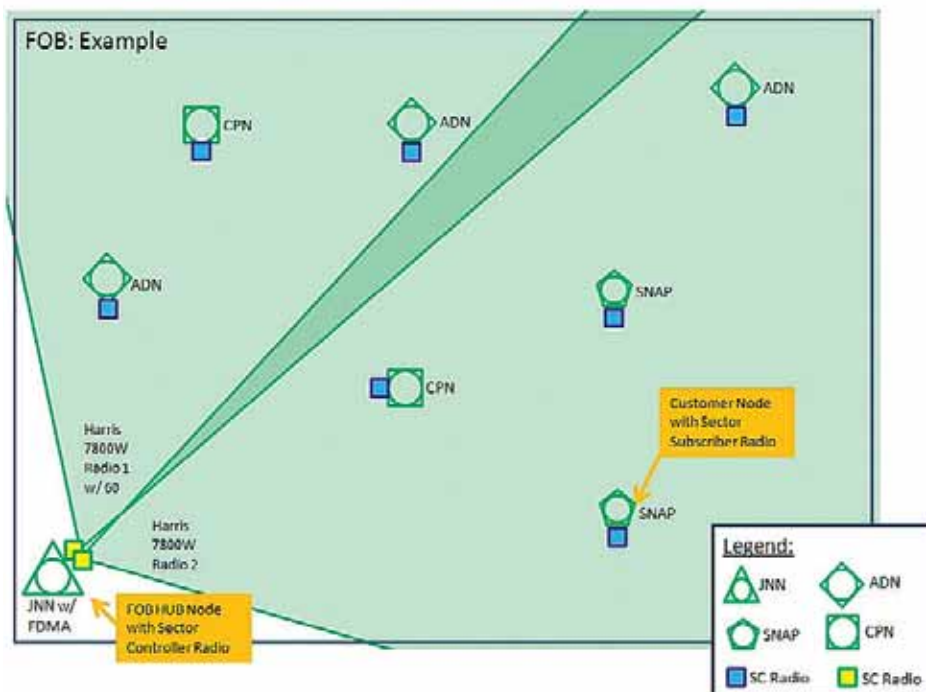

Tactical L3 Transport
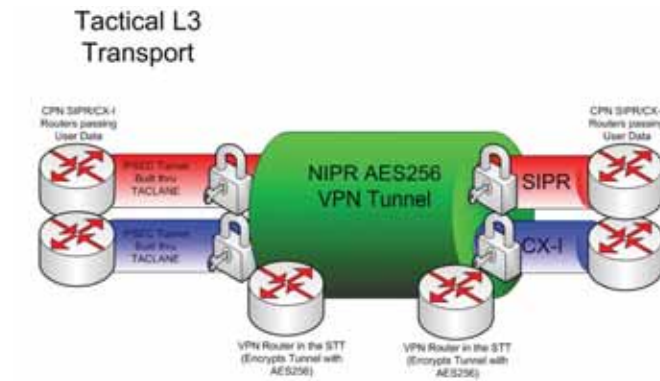
TACTICAL TUNNEL DESIGN This is a diagram of Tactical tunnel design used in WIN-T Tactical Nodes throughout the Army.

just a few radio sets. In PtMP configuration the Harris 7800W IP Radio is capable of a maximum thru put of 54 Mbps at distances up to 24 KM. In this configuration the Sector Controller radio can control up to 20 Sector Subscriber (SS) radios, in turn allowing for an economy of force, by conserving the limited number of radios available for use at other high priority sites. For Example, on FOB Dehdadi II, by utilizing a setup of both a PtP and a PtMP radio

TF DRAGON ADN DESIGN: This is the Area Distribution Node design diagram developed by RNCC-N engineers. This system is able to extend enterprise services via the black core transport network (strategic) or everything over NIPR (tactical). The ADNs utilizes Harris 7800W radios or Fiber/Copper cable to connect back to communication nodes.

network, the tactical node footprint has been reduced from nine tactical nodes down to two JNNs utilizing FDMA. These two JNNs now provided communications to over 500 customers on NIPR, SIPR and CX-I.

Besides just utilizing the standard tactical node interconnects, TF Dragon needed to find a way to extend service to customers without having to emplace an entire tactical node in order to interconnect. The solution was to build Area Distribution Nodes. These ADNs come in two forms tactical and strategic.

The initial tactical ADN design utilized the standard "Everything over NIPR" architecture (see Tactical Tunnel Design). It consisted of an AES256 capable router and switch for NIPR connected to a set with a TACLANE, router and switch for both SIPR and CX-I. Due to a shortage of networking equipment, we found a way to reduce the equipment requirements of this ADN by removing the SIPR and CX-I routers and terminating the Generic Routing Encapsulation Tunnel on the Layer 3 enable switch. This worked for all tactical sites because the number of users was low so it wouldn't over tax the switch's CPU. If the site was off of a PtP radio link you could also use the AES256 encryption offered by the 7800W radio only in PtP mode and remove the NIPR router and just trunk the NIPR switch.

This method even further saves equipment, but only with a PtP radio link.

The original strategic ADN looked very similar but with one difference. Strategic uses a Black Core transport network that consists of an open switched network to allow any end to end encrypted traffic to flow to any point that it was needed. The strategic ADN stack consisted of a Black Core switch, NIPR router and switch, SIPR & CX-I TACLANE and switch. Or because of the Black Core infrastructure, if a site just required one of the services all that was required was the Black Core switch and the appropriate switch/router/TACLANE combination to provide the required service.

A prime example of this combination of ADN and 7800W radio network infrastructure is on Camp Marmal. By utilizing two SC Radios setup with overlapping fans TF Dragon was able to support the entire FOB with 18 current SS radios ADNs at customer sites offering full strategic services from the strategic point of presence; with the expansion capability to support up to 40 ADN sites (see FOB Example Layout).

By utilizing both of these

Black Core Layer 3 Transport

Black Core Transport GRE Tunnel
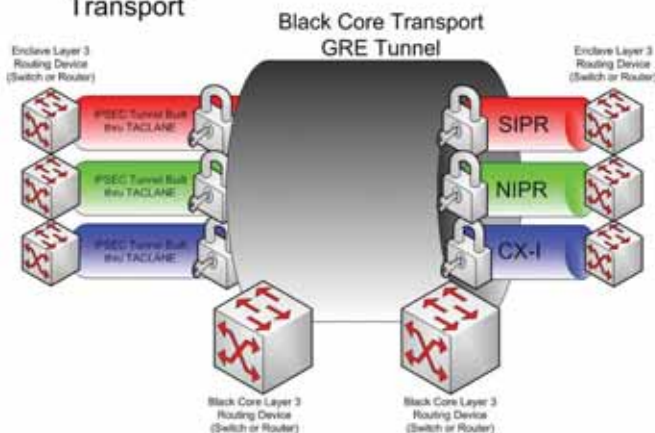
STRATEGIC TUNNEL DESIGN **This is a diagram of strategic tunnel design used in the RC-N.**

solution sets, TF Dragon was able to reduce its TDMA footprint from a peak of 72 tactical terminals to the current 50, with the current 50 having 12 interconnects 8 from TDMA nodes to an FDMA capable node and the remaining two connected to the MLoS back to Camp Marmal. This reduced the TDMA network burst time plan from a constant 95% utilization to an ideal 60% utilization over a seven carrier TDMA mesh (see time burst plan new). This in turn left room for the ever increasing customer base which from start of implementation increased by over 50%. By implementing these creative "economy of force" architectural changes to the RC-N network infrastructure, TF Dragon

and its network engineers have ensured a manageable and stable network for the future expansion of customer service throughout the North.

CPT Maxwell E. Fuldauer *is the battalion network engineer for the 307th Expeditionary Signal Battalion. CPT Fuldauer's education includes a Bachelor's Degree in Interdisciplinary Science with Emphasis in Astrophysics and is a graduate of TSEC 08-001. CPT Fuldauer's former positions include, company commander for B Co 307th ESB; assistant battalion S3 of the 307th ESB; and assistant brigade S6 of the 41st Fires Brigade, III Corps.*

Acronym QuickScan

ADN - Area Distribution Nodes
COP - Contingency Operation Posts
CPN - Command Post Node
CENTRIX - Combined Enterprise Regional Information Exchange
CX-I - CENTRIX – ISAF
ESB - Expeditionary Signal Battalion
ESC - Expeditionary Signal Company
FDMA - Frequency Division Multiple Access
FOB - Forward Operating Base
GRE - Generic Routing Encapsulation
HCLoS - High Capacity Line of Sight

HHC - Headquarters and Headquarters Company
ISAF - International Security Assistance Force
JNN - Joint Network Node
Mbps - Mega-Bits Per Second
MLoS - Microwave Line of Sight
NIPR - Non-secure Internet Protocol Routing
POP - Point of Presence
PtP - Point to Point
PtMP - Point to Multi-Point
RC (N) - Regional Command (North)

RHN - Regional Hub Node
RNCC-N - Regional Network Control Center - North
SC - Sector Controller
SIPR - Secure Internet Protocol Routing
SS - Sector Subscriber
TDMA - Time Division Multiple Access
TSEC - Telecommunications Systems Engineer Course
TF - Task Force
TFOCA - Tactical Fiber Optic Cable Assembly
WIN-T - Warfighter Information Network – Tactical

Social media behind the firewall promote Army-wide collaboration

By Claire Schwerin

Social media use is changing the way service members complete their missions and Department of Defense leaders are taking notice.

General officers are urging Soldiers to use secure wikis to update field manuals with their lessons-learned from Iraq and Afghanistan. Chaplains are communicating through a Facebook-style forum to discuss suicide prevention, training resources and prayers. Engineers are soliciting online feedback on cutting-edge power and energy sources that won't weigh down troops.

With the proliferation of Web 2.0 applications in the commercial world, the military is taking notice of how those same technologies can support a major cultural change: Less of the traditional top-down, "need to know," and more of the "responsibility to share."

Underlying it all is milSuite, a collection of user-friendly knowledge management tools mirroring popular social media platforms – but located securely behind DoD firewalls, so users can discuss sensitive but unclassified information. Initially launched in 2009 for a relatively small group of Army organizations, milSuite became available to the rest of the DoD in February 2011.

"I truly believe this technology can change the way we communicate on a scale we haven't seen since the introduction of email," said Emerson Keslar, director of the Military Technical Solutions Office (MilTech Solutions), a government organization of the Army's Program Executive Office Command, Control and Communications-Tactical and one of the architects of the milSuite project.

"If I'm working on a new mobile app, energy-efficient technology or budget process for the Army, there is a good chance that somebody in the Navy or the Air Force is doing the same thing," he said. "With milSuite, I can find that person and we can combine our efforts. There are hundreds, if not thousands, of processes that can be made more efficient by harnessing secure social media."

Grassroots start

The milSuite design was not originally designed to be transformative. When the 2005 Base Realignment and Closure Act mandated the closure of Fort Monmouth, N.J. and transition to Aberdeen Proving Ground, Md., PEO C3T and other Army organizations based at Fort Monmouth realized they were facing a massive brain drain. With predictions that approximately 70 percent of the workforce – including many highly trained
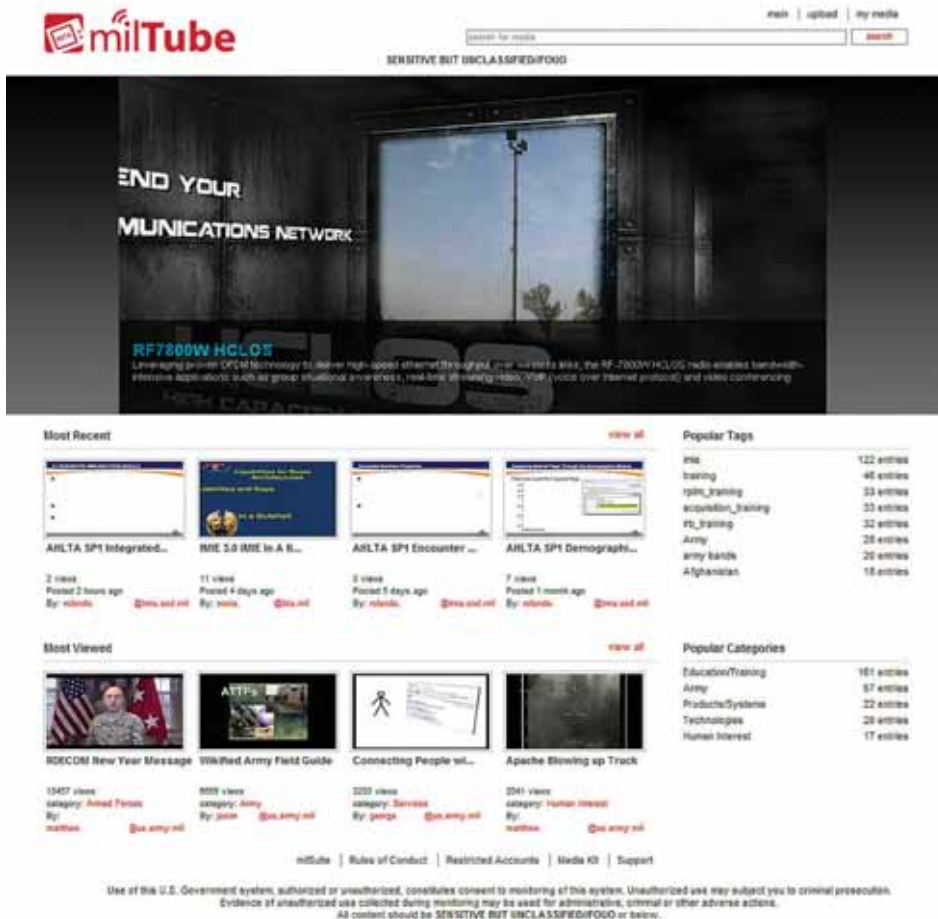
acquisition, logistics and technology professionals – would choose not to relocate, it was feared that their knowledge would evaporate.

As BRAC realities settled in during 2008-09, Keslar's team devised a mechanism to capture and preserve some of that expertise. Using Web 2.0 technologies that at the time were in their infancy – at least when it came to military implementation – they set up a news blog and a wiki behind the firewall. One forum was for community-wide updates, the other a living repository of institutional knowledge.

What started as an effort to preserve the knowledge of one installation soon caught fire within the broader Army community. New tools were added – including a crucial Facebook-like application that allowed users intimidated by the free-for-all of the wiki environment to break off into smaller working groups with varying levels of privacy.

With the launch of a YouTube-like capability in late 2010, the suite now consists of four secure applications: milWiki, a living military encyclopedia editable by subject matter experts; milBook, a professional networking tool providing communities of practice; milBlog, a place to share and comment on internal news and events; and milTube, a video-sharing capability for the military workforce. The tools are integrated with one another through a common user profile and linked by a Google search

appliance so users can locate the specific resources they need. All use adaptable and scalable products such as Jive Social Business Software – creating an environment that can easily bend and expand to meet the evolving needs of its user base at low cost for software.

With a small team and low budget, milSuite spread throughout the Army largely through grassroots appeal. Often users stumbled upon the tools through a link on another site, or a reference from a friend.

"That's what makes milSuite so different from the other knowledge management tools I have seen implemented in the Army over the last decade," Keslar said. "Usually you have to train people, and sometimes force people, to start using the resource. With milSuite they got it on their own."

From wiki doctrine to weapons systems to mobile apps

By late 2010, tens of thousands of users from hundreds of Army organizations were using the tools to collaborate. That included the U.S. Army Training and Doctrine Command, which launched a pilot project on milWiki to promote online collaboration of Army field manuals, allowing the knowledge and experiences of Soldiers conducting operations to be rapidly incorporated into doctrine. Like Wikipedia, anyone could edit and the content was shaped by the wisdom of the crowd. Unlike Wikipedia, no changes were anonymous – and each user had to have a Common Access Card to see the site in the first place.

"The purpose of the portal

is to incorporate insights and lessons-learned from Soldiers and officers, based upon recent experiences in theater; but the goal is to ensure tactics, techniques and procedures remain relevant," said GEN Peter W. Chiarelli, vice chief of staff of the Army, soon after the program's launch. The pilot remains ongoing, and new manuals continue to be added.

A more recent partnership between milSuite and the U.S. Army Forces Command combines milWiki, milBook and milTube to construct a secure online location where Soldiers can go to see and understand the equipment they are going to encounter in theater. They will have the ability to sort that information by echelon, watch training videos and locate systems through a visual, web-based tactical operations center view.

At the U.S. Army Research, Development and Engineering Command's communications-electronics center, technology developers have leveraged milBook to collect user feedback about power and energy sources that are under development. A "C2

Mobile" group on milBook links CERDEC engineers with others across the DoD who are working on mission command applications for mobile devices.

"Those of us developing smartphone apps for the DoD all confront the same issues – security, information assurance, interoperability with existing systems," said Michael Anthony, chief of the Mission Command division of CERDEC's Command and Control Directorate and manager of the Collaborative Battlespace Reasoning and Awareness Army Technology Objective. "The beauty of this group is we can leverage one another's knowledge and investments to more quickly deliver relevant technologies."

Not all projects use secure social media to reinvent a process or improve a product. Some simply connect disparate communities of interest – such as Army chaplains. Paul Villano, knowledge management officer for the U.S. Army Chaplaincy, began using milSuite as an alternative to emails and newsletters for communicating with chaplains and chaplain assistants.

"I've been able to contact a much wider audience than I could have otherwise reached," Villano said. "It also allows 'back and forth' collaboration and threading."

His primary group on milBook – visible to the entire user community – now has more than 450 members, with some discussion threads garnering more than 1,000 views. That space links to other more private groups where chaplains can handle more sensitive topics.

"We've come to see that knowledge management is about the people using what the people are most comfortable with using to do what people do best: share, as easily as possible," Villano said. "Since milSuite meets that goal so well, we're happy to use it to support chaplains and chaplain assistants who provide religious support to Soldiers and their families."

Another community of interest came together after the Army began rolling out its new web-enabled financial and accounting management system in 2009. General Fund Enterprise Business System officials created spaces on milWiki and milBook where users could locate system information and ask questions in secure discussion groups.

"It provides one place to send users to get accurate and relevant information about the program," said Jennifer Randolph, a

knowledge management specialist for the Program Executive Office, Enterprise Information Systems and one of the architects of the GFEBS Web 2.0 project. "Our KM solution expands the knowledge base of the users by allowing them to share information and experiences among themselves, which in turn would reduce help desk tickets."

For GFEBS – which ultimately will be used by more than 79,000 financial professionals at nearly 200 locations worldwide – that "horizontal" communication between individuals who perform similar jobs at different organizations was essential to customer service.

The major factors driving the decision to use milSuite were the built-in security features, integration with an AKO document repository and the ease of use in creating a community presence, Randolph said.

"If either (customers or employees) sees the KM system as a burden, they will not use it," Randolph said.

Secure Social Media for the Enterprise

In 2011, the milSuite team implemented the logistical and cultural changes necessary to bring its grassroots, user-driven approach to the enterprise level. To open the doors to more non-Army users, milSuite changed its authentication method from logging in with an Army Knowledge Online/Defense Knowledge Online account to logging in with a Common Access Card. In collaboration with the Defense Information Systems Agency, milSuite also migrated from its first home at an Army.mil URL to https://www.milsuite.mil, a URL that is not service-specific.

In just over two months, the number of registered users spiked by 10,000, including many from the Navy, Air Force and others who were previously unaware. In August, there were 162,000 members – from interns to 99 Army General Officers who were registered users of milBook. Those same senior leaders have their own milBook community: ORION, which proponents hope will reduce primary dependency on mass email distribution and frequent face-to-face meetings by providing a secure online forum to coordinate effort, develop and refine issues, and make decisions.

"I'm still amazed on a daily basis by the innovative ways our users apply the technologies to support so many different missions," Keslar said. "At a time when we are all focused on efficiencies, milSuite is one way we can overcome the geographic and organizational divisions of the military community to share information instantly."

Claire Schwerin *is a staff writer for Symbolic Systems, Inc., supporting the Army's Program Executive Office Command, Control and Communications-Tactical).*

Army Communicator Readership Survey

Army Communicator Readership Survey

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Back Cover: *Signal Corps officer LTG Dennis L. Via, U. S. Army Materiel Command deputy commanding general has been designated for appointment to the grade of general and assignment as commanding general of AMC. The Army Communicator will feature his story in the Summer edition in June when he is scheduled to assume command of the AMC.*

Back Cover by Billy Cheney

LTG Dennis L. Via
*Deputy Commanding General
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